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THE PHANTOM FLEET--
FOREIGN FLAGS ON U.S. SHIPS

by

Douglas Vaughn Smith

June 1982

Thesis Advisor: Robert E. Looney

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This thesis is an analysis of United States tankship assets and the ability to transport oil resources, particularly in a crisis situation. It examines the question of whether tankship assets are sufficient to meet national demands for oil imports and, through quantitative analysis using multiple regression techniques, makes projections for continued sufficiency of tankship assets through the

year 2000. The research effort was primarily directed at the development of U.S. merchant marine policy as that policy provides structure for current merchant marine assets. Three distinct groupings of vessels are considered: (1) those owned and/or operated by the Military Sealift Command; (2) those registered in the United States and flying the U.S. flag; and (3) those owned by U.S. citizens but registered abroad and comprising the "effective U.S. controlled fleet."

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ABSTRACT

This thesis is an analysis of United States tankship assets and the ability to transport oil resources, particularly in a crisis situation. It examines the question of whether tankship assets are sufficient to meet national demands for oil imports and, through quantitative analysis using multiple regression techniques, makes projections for continued sufficiency of tankship assets through the year 2000. The research effort was primarily directed at the development of U.S. merchant marine policy as that policy provides structure for current merchant marine assets. Three distinct groupings of vessels are considered: (1) those owned and/or operated by the Military Sealift Command; (2) those registered in the United States and flying the U.S. flag; and (3) those owned by U.S. citizens but registered abroad and comprising the "effective U.S. controlled fleet."

TABLE OF CONTENTS

I. INTRODUCTION 10

A. HYPOTHESIS 11

B. METHODOLOGY 12

II. U.S. NATIONAL MARITIME POLICY: A HISTORICAL ANALYSIS 14

A. THE NATURE OF U.S. MARITIME POLICY 14

B. THE MERCHANT SHIPPING INDUSTRY--HISTORICAL CONTEXT 16

C. STRUCTURING MARITIME POLICY--THE EARLY PERIOD 18

D. LEGISLATIVE INVOLVEMENT 21

1. The Progressive Era 21

2. Increased Government Regulation 24

3. The Post-War Period 27

4. The Road to War 31

E. THE EVOLUTION OF FOREIGN FLAG REGISTRY 36

1. Genuine Link 36

2. The Evolution of Panamanian Registry . . . 38

3. Panama--Sovereign State or American Puppet? 44

4. Expansion of Panamanian Registry 46

F. EVASION OF NEUTRALITY 49

G. THE EMERGENCE OF THE UNITED STATES MERCHANT MARINE--NEW EMPHASIS ON DEFENSE 51

1. World War II 51

2. The Post War Period--Military Exigencies of Effective Control 54

H. THE GENESIS OF LIBERIAN REGISTRY 59

I. RECENT DEVELOPMENTS IN U.S. MARITIME POLICY . 63

1. U.S. Policy in Context 63

2. Structuring Maritime Policy--The Last Decade 65

3. Emergency Requisition of Foreign Vessels . 66

4. Maritime Policy in Retrospect 67

III. INTERNATIONAL LAW AND REGISTRY UNDER FOREIGN FLAGS 69

A. FLAGS OF CONVENIENCE OR FLAGS OF NECESSITY? . 69

B. INITIAL ASSAULTS ON FLAGS OF CONVENIENCE . . . 72

1. Points of Contention 72

2. Organizing the Opposition 74

C. INTERNATIONAL LEGITIMACY FOR FLAGS OF CONVENIENCE 81

D. EFFECTIVE CONTROL REAFFIRMED FOR THE AMERICAN OWNED TANKER FLEET 83

E. THE ESTABLISHED SYSTEM 84

IV. UNITED STATES OIL TRANSPORTATION CAPACITY 87

A. INTRODUCTION 87

B. NATIONAL MARITIME CAPACITY 87

C. STRUCTURE OF THE MILITARY SEALIFT COMMAND . . 89

D. U.S. FLAG AND EFFECTIVE U.S. CONTROLLED TANKSHIP ASSETS 97

1. Scope of the Analysis 97

2. The Model 97

3. The World Tankship Fleet 100

4. U.S. Flag and Effective U.S. Control Tankship Assets 100

5. U.S. Petroleum Transportation Capacity . . 108

6. United States Oil Consumption Patterns . . 116

7. Comparing Transport Capacity to Import Requirements 121

8. Conclusions Drawn from the Analysis . . . 124

V. OIL AND GRAND STRATEGY: THE STRATEGIC LINK . . . 127

A. INTRODUCTION 127

B. OIL AND WAR 129

1. Historical Context 129

2. Oil and World War I 130

3. Oil and World War II 134

a. Strategic Resources and the War in Europe 134

b. Oil and Grand Strategy in the Pacific 141

C. STRATEGIC DEVELOPMENTS IN THE MIDDLE EAST . . 143

D. STRATEGIC TIES TO MEANS OF OIL TRANSPORTATION 146

E. CONFLICT SCENARIOS FOR SOUTHWEST ASIA 148

1. Nuclear Conflict Confined to Southwest Asia 148

2. Confrontation at Sea 151

3. Indigenous Revolt or Soviet Proxy 155

F. REALITIES OF SOVIET POLICY IN SOUTHWEST ASIA . 160

VI. CONCLUDING REMARKS 163

LIST OF REFERENCES 168

INITIAL DISTRIBUTION LIST 179

LIST OF TABLES

I. BULK PETROLEUM TRAFFIC BY CARRIER FY 1972-FY 1980 92

II. SHIPMENTS OF DRY CARGO AND PETROLEUM BY MILITARY SEALIFT COMMAND, FISCAL YEARS 1952-1980 93

III. WORLD TANKSHIP FLEET 1957-1980 101

IV. STATISTICAL ANALYSIS OF WORLD TANKSHIP FLEET . . 102

V. WORLD TANKSHIP FLEET PREDICTED DEADWEIGHT TONNAGE 1985-2000 104

VI. ANALYSIS OF UNITED STATES OWNED TANKSHIP FLEET (Ocean-Going Vessels 2,000 Gross Tons and Over) . 110

VII. U.S. PETROLEUM TRANSPORT CAPACITY (Including U.S. Flag and Effective-Control Fleet) 111

VIII. U.S. OIL IMPORTS 1960-1981 (42 Gal. Barrels/Day) 117

IX. STATISTICAL ANALYSIS OF U.S. OIL IMPORTS 118

X. IMPORTS OF CRUDE OIL AND PETROLEUM PRODUCTS BY COUNTRY OF ORIGIN, CY 1981 (Thousands of 42-Gallon Barrels) 122

XI. CARRYING CAPACITY OF U.S. AND U.S. EFFECTIVE CONTROL TANKSHIP FLEET 125

LIST OF FIGURES

1. Normal Sequence of Resource Utilization 94

2. Plot of World Tankship Fleet (Deadweight Tonnage vs Year) 103

3. Plot of U.S. Oil Imports (Imports vs. Year) 119

I. INTRODUCTION

To the average American, oil is the single resource that is most critical to both lifestyle and economic well-being. No other society in history has become as mobile or as transportation oriented. In a like manner, probably no society is as vulnerable to disruptions in the availability of this vital resource. This vulnerability comes at a time, ironically, when the United States must rely increasingly on foreign sources for access to this vital resource. The vulnerability not only extends to manipulations and political reasons by the Arab members of the Organization of Petroleum Exporting Countries (OPEC) cartel, but also to potential military and terrorist instigated disruptions as well.

As the dominant world seapower since World War II, the United States has had little challenge to maintenance of sea lanes of communications. Today, the growth of Soviet naval capabilities and the ability of that nation to project power through use of naval assets must be of concern to those in the United States tasked with formulation of naval strategy. So also must the acquisition of minor naval assets with formidable weapons capability by Third World nations whose leaders may be inclined to demonstrate hostility through irrational military acts. Clearly the military, of all segments of American society, is most reliant on oil products for its

continued function. Total mechanization of land, sea and air forces in the modern military ties any prosecution of a military strategy directly to access to oil.

Closely associated with U.S. reliance, in both the economic and military sense, on strategic access to oil resources is strategic interest in the ability to transport those resources. For this reason the structure of the United States merchant marine, and of national policy toward the merchant marine, is directly related to national security. This work will be directed at an investigation of U.S. merchant marine policy as it relates to the structure and adequacy of U.S. merchant marine assets for the transportation of oil. Particular attention will be paid to the strengths and vulnerabilities of U.S. merchant marine assets, and to the prospects for a change in their basic structure over time.

A. HYPOTHESIS

The hypothesis under which research for this paper was conducted is as follows:

> If radical departures in current U.S. maritime policy are not caused by a crisis situation of significant magnitude or a collapse of the national economy, then the structure of U.S. assets capable of transporting oil for American economic and military purposes will continue to be adequate for the remainder of this century as driven by market forces in the industry.

This hypothesis makes two basic assumptions: (1) that current U.S. capacity to transport oil for domestic consumption

is in fact adequate at this time, and; (2) that the structure of assets responsible for that capacity is driven by U.S. merchant marine policy.

B. METHODOLOGY

To prove the hypothesis under which the research was conducted, it was first necessary to establish a valid link between U.S. maritime policy and the structuring of U.S. merchant marine assets. An investigation of the history of U.S. maritime policy and examination of trends in the merchant marine resulting from individual legislative initiatives served this purpose well.

In that U.S. merchant marine policy has resulted in a reliance on assets flying other than the U.S. flag for both economic and military purposes, the second phase of research was directed at the status in international law of such a strategic relationship. As an exgenous variable with potential for influencing U.S. maritime policy to some extent, particular emphasis was paid to the current and likely future status of foreign flag registry in international law and practice. Historically documented court interpretations of this law as it applies to U.S. maritime policy was the basis for conclusions drawn.

Perhaps the central issue of the research--capacity to transport oil as compared with import requirements--was the subject of computer-based data analysis. Multiple linear

regression modeling techniques were used to provide a basis for projections of U.S. asset adequacy for the remainder of this century. The same techniques were used in the analysis of U.S. oil consumption and import trends. Comparison of the data-based results was the basis for any conclusions drawn.

Finally, an assessment of vulnerability of tankship assets in a crisis situation was conducted. Historical analogy was used as a basis for establishing the potential areas of vulnerability. This research method was chosen both because of its heuristic value and because the significance of insights thus provided is in the application to new situations. Evaluation of potential threat scenarios also relied heavily on historical cultural biases and the development of a certain adversary military style likely to manifest itself in the future.

Throughout the research for this paper, the significance of historical evolution of policy as it relates to the generation of any data base was maintained. Validity is established in historical fact.

II. U.S. NATIONAL MARITIME POLICY: A HISTORICAL ANALYSIS

A. THE NATURE OF U.S. MARITIME POLICY

In 1789 the first registry law for merchant shipping was passed in the United States [Ref. 1]. This law reserved the privilege of registry to vessels constructed domestically, and established the U.S. cabotage principle still in effect today whereby coastal trade is reserved to ships of the national fleet. This law prevailed until 1912, at which time ships of foreign construction were admitted to U.S. registry for use only in the foreign trades [Ref. 2]. Since that time United States shipping policy has changed dramatically, primarily because of the two World Wars experienced this century and the increasing national reliance on resources and raw materials not available domestically in sufficient quantity. U.S. national maritime policy has developed and evolved in a unique manner reflective of both the nation's economic and military security needs. In viewing this historical development, it is necessary to analyze: (1) the manner in which a coherent policy has been adopted to cover the diverse interests of the private and public sectors, and (2) the extent to which the policy that has developed accomplishes national economic and security goals.

In terms of national security, it is impossible to isolate the component of "American" shipping that is of direct

utility to the military without suboptimizing the relationship between security and access to (and transportation of) resources critical to the national economy. Therefore, the following analysis of U.S. maritime policy and its relationship to national security will include categories of shipping assets as indicated below:

1. Shipping controlled directly by the Military Sealift Command (MSC) and operated entirely to support military operations.

2. Shipping of the United States national fleet, and as such under direct U.S. control and of U.S. registry.

3. Shipping of the "effective-control fleet" of the United States which is owned in whole or in part by U.S. citizens but, for a variety of reasons, has been registered under a foreign flag.[1]

These types of shipping assets, although diverse in many respects, in combination provide the United States with the shipping services on which the national defense must depend. Therefore, to fully understand the nature of current U.S. shipping policy and the interrelationship of the types of assets incorporated in U.S. defense planning, a comprehensive evolutionary background of the development of U.S. maritime legislation and of registration under "runaway flags" is a prerequisite. Although the primary concern of this work is tankship assets and the ability to transport oil, it is

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[1]For reasons which will be explained in greater depth later in this chapter, effective U.S. control shipping refers only to ships registered in Panama, Liberia, Honduras and Costa Rica. More recently, the term refers almost exclusively to shipping of Liberian and Panamanian registry.

impossible to separate or isolate a single component of the shipping industry and develop a coherent description of how that component has arrived at its current state in relation to policy and registration. Additionally, other types of shipping, such as break-bulk carriers and container ships, are of immense importance to national security and should not be deleted from consideration in the overall picture. These type assets will be mentioned only peripherally, however, and every effort will be made to concentrate on the national security aspects of availability of means of seaborne transportation of petroleum products.

B. THE MERCHANT SHIPPING INDUSTRY--HISTORICAL CONTEXT

Throughout the history of the United States the federal government has played a dominant role in the regulation of the shipping industry. This industry has been considered of such importance that the second and third acts of the First Congress were enacted to lower duties on certain imports when transported in ships of U.S. citizens rather than those owned by foreign nationals and impose higher tonnage duties on foreign vessels entering U.S. ports than on U.S. vessels [Ref. 3]. These laws, like many that were to follow, were intended to compensate for the inability of a fledgeling merchant marine to compete with the well established merchant fleets of the European powers. As a virtual island nation, the United States was in obvious need of shipping links with

Europe. Availability of easily exploited domestic resources, however, negated the vital aspects of a domestically controlled fleet of considerable size.

Merchant shipping, nonetheless, did prosper at certain periods in our nation's early history. Not possessed of a great navy to protect this shipping on the high seas, it was often vulnerable to attack from the more powerful European and North African seafaring nations. Although, as mentioned earlier, a registry law had already been passed in the United States in 1789, registry under a foreign flag was seen as a way to compensate for the inadequacies of protection under the American flag as well as to evade restrictions imposed on ships of U.S. registry. During the War of 1912, a number of American merchant vessels actually flew the flag of Portugal to evade American and British restrictions [Ref. 4]. This type of "runaway registry" was an early precedent for the registry system that has evolved for effective U.S. control shipping today. It also marked the beginning of a number of situational predicaments that have plagued the world registry system throughout its history.

The United States, through its exercise of sovereignty, has the power to compel its citizens to register whatever ships they may own under the U.S. flag. In terms of national security, this is certainly the most expedient method of controlling shipping. Unfortunately, however, shipping, like any other commodity, is subject to market forces. Demand for

shipping is highly elastic and therefore any legal or other restrictions placed on assets owned by U.S. citizens would undoubtedly place them in an inferior, and thus unacceptable, market situation. The only way to preclude this is to approach U.S. shipping in the same manner as any other commodity to be included in a free trade situation, or to subsidize it to place it on an equal footing with the competition. Subsidizing shipping inherently entails a significant cost to be borne by the American public. The cost of subsidizing a fleet commensurate with national security objectives would be immense. Competition for technical expertise with the private sector, as well as competition for resources with other American industries, significantly increases the cost of ship construction in the United States. This places the U.S. shipbuilding industry at a distinct competitive disadvantage compared to foreign competition. To establish viable U.S. shipbuilding industry, cost differentials would have to be compensated for through subsidization. It is in this context that American national maritime policy had developed.

C. STRUCTURING MARITIME POLICY--THE EARLY PERIOD

It is a general premise of international law that all oceangoing ships must have some nationality to claim the protection of that law [Ref. 5]. In 1905 in the Muscat Dhows case, the Permanent Court of Arbitration at the Hague decided

that the flag of registry of a ship, rather than its ownership, certified the nationality of the ship [Ref. 6]. Thus a ship may at the same time be owned by a citizen (or citizens) of one (or several) nation(s), through a corporation in another nation, crewed by nationals of yet another nation or nations, and registered in yet another nation. The divergence between this situation and one in which a ship is owned, operated, crewed and registered entirely within the auspices of the United States has obvious national security and legal overtones. This problem did not become particularly important until the emergence of a strong national maritime industry with the U.S. departure from isolationism at the turn of the centruy.

The Spanish-American War demonstrated not only a need for a strong U.S. navy, but just as importantly for a strong merchant marine to support its operations. Therefore, during the Roosevelt Administration, a strong link between merchant shipping and national security was established. During the period from the Revolutionary War to the Civil War, American shipping had prospered greatly. A necessary adjunct to the commercial and economic interests of the nation, a strong maritime tradition developed which rivaled that of the well established seafaring nations. In 1855 alone, American shipyards delivered over 2,000 new ships and the U.S. flag fleet grew to nearly half the size of that of Great Britain [Ref. 7]. The Civil War, however, reversed this trend toward

maritime greatness. By War's end, the U.S. foreign trade fleet was reduced, through destruction and transfer to flags providing a safe haven, by nearly forty percent (from 2.5 million to 1.5 million gross tons) [Ref. 8]. The ensuing period in American history saw concentration on and capital investment in the westward expansion of the nation. The result was the further reduction of American shipping interests and capacity. Thus, the Spanish-American War found the United States in a position of inadequacy of maritime support for military operations. The first real test of U.S. naval strength outside home waters since the War of 1812 demonstrated an embarrassing lack of support vessels for operations as close to the mainland as those conducted in the blockade of Cuba, let alone those as far away as the Philippines. To achieve ultimate victory, it was necessary for the U.S. Navy to purchase and charter foreign vessels, every obtainable American vessel in the Atlantic ports having been chartered with a net result of only 36 ships totaling 90,000 tons [Ref. 9].

The British engagement in the Boer War (October 1899 - May 1902) exacerbated the situation by diverting shipping tonnage on which the United States was strongly reliant for foreign trade. Although the necessity for a strong merchant marine was communicated to Congress in 1903 by President Roosevelt, who called for a determination of "the advantages to this country of a strong merchant marine and an exact

knowledge of the costs and proper methods of carrying it on," many American observers were outraged when the Great White Fleet could not get underway without attendance by a combination of colliers, tankers and tenders from such diverse countries as Britain, Italy and Sweden [Ref. 10]. The decision to begin conversion of the U.S. Navy from coal to oil in 1911 and the first official passage by a U.S. ship through the Panama Canal on August 15, 1914, also increased the growing awareness that the American shipping industry would of necessity have to receive stimulus in order to keep pace with the nation's commercial and military needs.

D. LEGISLATIVE INVOLVEMENT

1. The Progressive Era

At the same time that shipping inadequacies were becoming evident, the nation was developing an increased sense of social justice. Those involved in the seafaring trades in the United States had traditionally been subjected to poor living standards, low wages, health and safety hazards that could have been corrected, and excessive and arbitrary discipline. These conditions existed primarily because of a lack of any coherent governmental regulatory policy.

Prior to 1910, seamen working out of U.S. ports earned only slightly higher wages than those of other nations. Higher steel prices and construction costs, however, produced a situation where ships produced in the United

States cost 40-70 percent more than those constructed in Great Britain or Germany [Ref. 11]. Additionally, U.S. vessels were considered inferior in design as they were not as stable as European designs in heavy seas. Since only domestically produced vessels could be registered in the U.S., this situation caused a flow of American shipping capital overseas for the purpose of gaining commercial advantage through purchase of foreign-built ships (which could be registered only under a foreign flag). Though revenues were returned to the U.S. owners, control of shipping acquired in this manner could be exercised by the nation of registry in a conflict situation. Although the national security aspects of this situation became more apparent as the world moved closer to war, the immediate effect was to diminish the position of American seamen vis-à-vis foreign seamen who would accept lower compensation and, in some cases, worse working conditions. Thus, foreign registry offered the shipowner not only competitive advantage in relation to shipbuilding and labor costs, but legal advantage in relation to regulations as well.

Compounding this situation was a U.S. tariff structure that, although aiding domestic producers, decreased somewhat foreign desire to trade with the United States. This in turn decreased the necessity for shipping to engage in foreign trade. Although a running debate to lower the tariffs was conducted throughout the pre-war period,

adherents to the counter-argument for subsidization of the shipping industry effectively negated any potential for a remedy to the situation. A 1912 rider to the Panama Canal Act granting to American shipowners the right to purchase foreign-built ships on a duty-free basis for operation exclusively in the foreign trade proved singularly unattractive in that, even if ships could be purchased reasonably, U.S. shipping restrictions still impinged on operational profitability.

Progressive Era social legislation in some respects attempted to alleviate this situation, and in others effectively increased the economic barriers that were preventing a growth of the American flag fleet: (1) The La Follette Seamen's Act of 1915, in response to pressures from the International Seamen's Union, removed penalties for jumping ship in the hope that this would provide incentive for American seamen to accept lower wages in equilibrium with world scale rates [Ref. 12], (2) Section 2 of the Seamen's Act established eight-hour shifts, a six-day work week, and scheduled holidays for merchant crews, and (3) Section 13 of the Act required that 75 percent of the crew speak the same language as the ship's officers, and that two-thirds hold American able-bodied seaman's papers. Section 6 increased required size of crews' quarters and strengthened earlier legislation regarding crews' diet [Ref. 13]. The net effect of this legislation, though much needed, was to place an even

more significant barrier between the American shipowner and profitability under the existing legal system. Only American registered ships operating in the coastal trade (which was protected from foreign competition) could operate on an equal basis with other ships in a like situation. Although shipping costs were higher than those on the world market, exclusion of competition caused the cost differential to be borne by the forces of production rather than the American shipping industry. Increased costs were in turn passed along to the consumer in the form of higher prices.

2. Increased Government Regulation

The Shipping Act of 1916 went even further in terms of establishing regulatory legislation. While Woodrow Wilson's early policy subsequent to his election in 1912 was concerned mainly with correcting deficiencies in existing maritime legislation, the onset of the First World War created a need for direct government involvement in the formation of shipping policy through legislative action. Where in 1910 only 15 percent of crews aboard U.S. flag ships were American citizens, the reliability of crews composed to large extent of nationalities engaged in the hostilities posed a serious concern for the Administration [Ref. 14]. The Seamen's Act of 1915 was a significant step in ensuring reliability of crews for the continuation of U.S. commerce. Two previous statutes enacted in 1914, during U.S. neutrality, authorized the Treasury Department to write war risk insurance

on American flag vessels and to liberalize terms of transfer of U.S. owned vessels registered abroad to U.S. registry [Ref. 15].

Though this legislation was successful in large measure, the Shipping Act of 1916 provided the most comprehensive legislation to date in establishing a coherent national maritime policy. The creation of a Shipping Board, composed of five members, centralized the administration and regulation of the U.S. flag fleet [Ref. 16]. The Act authorized the Board to build up the merchant fleet through purchase, lease or charter as an adjunct to military requirements. The Board was also empowered by Section 6 to accept transfer of ships not needed for purposes of defense from the War and Navy Departments for retention or disposition as outlined in Sections 7 through 9 [Ref. 17]. Section 10 of the Act enumerated the right of the President, upon declaration of an emergency, to secure use for military or other purposes of vessels administered by the Board [Ref. 18].

It is interesting to note that provisions of Section 9 of the Act permitted, for the first time, transfer of certain vessels approved by the Shipping Board to foreign registry [Ref. 19]. Though the regulatory sections of the Act concerned with establishing economic equity were important, they were aimed primarily at shipping involved in the coastal trades and had little immediate effect in comparison to the establishment of the Shipping Board.

The Shipping Board was formally set up in January of 1917, and war was declared by the United States on 6 April, 1917 [Ref. 20]. Almost immediately, a shipbuilding program of considerable magnitude was initiated. An Emergency Fleet Corporation was established and three thousand vessels were authorized by the Board for construction (but less than one-sixth were completed prior to the armistice of 11 November, 1918 [Ref. 21]). At completion of the program, when contracts had run their course by May, 1922, the U.S. flag fleet totaled 13.5 million gross tons of shipping over 1,100 tons at a cost of approximately $3.3 billion [Ref. 22]. This figure represented nearly five times prewar U.S. flag tonnage and 22 percent of the world fleet, over half of which was owned by the government [Ref. 23].

Thus the United States entered the post-war period with shipping assets, particularly government owned assets, far in excess of immediate perceived need. The confiscation of practically the entire German merchant fleet and transfer to Allied flags as a result of the Treaty of Versailles (June 1919) increased this shipping excess and created two situations of significance [Ref. 24]. First, the excess of shipping tonnage, which was to reach 17 percent of the world's total shipping by 1922, caused a competitive setting which greatly reduced shipping rates, sometimes below the point of profitability [Ref. 25]. Second, the excess capacity immediately reduced the necessity for the large shipbuilding

capacity (which had developed during the war). This had the long-term effect of stagnating industry and preventing its modernization with time as investment capital was scarce. The result was a gradual decline in shipbuilding capacity and migration of labor to other occupations. This eventually contributed to significantly higher shipbuilding costs in the United States and, when combined with an inability to compete with cheap foreign labor for merchant crews, a desire and in some cases a necessity for American shipping firms to register their fleets abroad.

3. The Post-War Period

The operation of vessels acquired by the Shipping Board through the Emergency Fleet Corporation was limited by the Shipping Act of 1916 to the duration of the war plus five years [Ref. 26]. The Act neglected, however, to provide sufficient guidance for the transfer of excess government-owned shipping to private operation once hostilities had ceased. No balance had been established between the need for a viable peacetime merchant marine operating under the U.S. flag and the national security requirements inherent in the convertibility of this merchant marine to military purposes in time of national emergency. The Merchant Marine Act of 1920 (Jones Act) attempted to clarify the procedures for conversion of the fleet to private ownership [Ref. 27].

The Shipping Board was empowered to act as a "prudent businessman" in disposing of both the ships of the Emergency

Fleet Corporation and those confiscated from the Central Powers, and to regulate shipping policy in the national interest. A prohibition was also levied against transfer of ships of great value to foreign flags. Recognizing a conscious need for establishment of long-term maritime policy, the act was prefaced with a declaration of purpose as follows:

> Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it is necessary for the national defense and for the proper growth of its foreign and domestic commerce that the United States shall have a merchant marine of the best equipped and most suitable types of vessels sufficient to carry the greater portion of its commerce and serve as a naval or military auxiliary in time of war or national emergency, ultimately to be owned and operated privately by citizens of the United States; and it is hereby declared to be the policy of the United States to do whatever may be necessary to develop and encourage the maintenance of such a merchant marine, and, in so far as may not be inconsistent with the express provisions of this Act, the United States Shipping Board shall, in the disposition of vessels and shipping property as hereinafter provided, in the making of rules and regulations, and in the administration of the shipping laws keep always in view this purpose and object as the primary end to be attained. [Ref. 28]

Although the Act was clearly intended to establish a strong American flag fleet as an adjunct to national security, loopholes in its administration allowed the transfer of several major vessels to the flags of other nations [Ref. 29]. This, in reality, marked the beginning of a "phantom" U.S. fleet--a fleet for all intensive purposes under United States control, but nonetheless flying the flags of foreign nations.

The Merchant Marine Act, with minor amendments and some shifting of emphasis, remains the basis for present-day

maritime policy [Ref. 30]. It also provided the guidelines by which the Shipping Board administered the divestiture of the excess in government owned shipping. The Harding administration failed to formulate a concise policy for sale of shipping assets and the Senate in fact subsequently investigated alleged mismanagement of this and other areas of responsibility. The Coolidge administration was likewise unable to arrive at a policy to accomplish its desired goals. The Hoover administration, however, was more pragmatic in its approach to the problem. While each of the post World War I administrations had attempted to solve the excess tonnage problem by transfer of ships to private ownership, President Hoover realized that government assistance was necessary to place American shipping on equal terms with that of foreign competition. He also felt that assistance to assets unprofitable in comparison to foreign competition, primarily cargo and tankship assets, should receive preference in receiving government assistance over more competitive types of operations. In no respect was his policy intended to undermine the standards that had been established by the La Follette Seamen's Act. It was, rather, intended to provide financial assistance to an area of commerce essential to the nation in both economic and defense terms, the cost of which would be borne by the business sector (the major beneficiary of a strong merchant marine).

The program developed under Hoover, as Secretary of Commerce under Presidents Harding and Coolidge even prior to his own election to the Presidency in 1928, was centered on operation of the government-owned merchant fleet as a business under a newly-instituted Fleet Corporation [Ref. 31]. The Shipping Board would be stripped of its responsibility for ship operation and general maritime services, and would be limited to a regulatory function [Ref. 32]. Sale of vessels would not be conducted on a separate ship basis, but, rather, as part of established government lines with customers, contracts, and port docking arrangements already in effect and with government initiated American exporter support [Ref. 33]. Ships not needed to establish such lines would be sold as scrap or to foreign interests not in competition with the American operations.

The Merchant Marine Act of 1928 was passed to stimulate Hoover's program. It established a Construction Loan Fund and instituted a mail contract system on certified routes to subsidize operation determined to be of necessity in relation to government and private economic interests. The onset of the depression in late 1929 prevented full implementation of Hoover's maritime plan. By the end of his administration, however, the surplus fleet had been reduced, over fifteen private shipping lines had been established, the number of government-operated lines had been cut, an annual $25 million postal contract system had been approved, and the

operating and regulatory functions of the Shipping Board had been separated [Ref. 34].

4. The Road to War

President Hoover offered a strictly commercial direction to U.S. maritime policy. Time having changed attitudes, he was not constrained as Harding and Coolidge by defense considerations in the immediate aftermath of World War I. When Franklin D. Roosevelt took office in 1933, however, the setting was rapidly changing. The growing threat of war in Europe caused a rethinking of maritime policy which resulted in a restructuring with primary emphasis on national defense and military exigencies. Roosevelt also favored an explicit system of subsidies rather than indirect aid to the maritime industry through such programs as the awarding of mail contracts. The legislation which resulted, the Merchant Marine Act of 1936, set in place the most comprehensive system of maritime law yet provided in this nation. Promotional measures were codified, administrative procedures established, and regulatory procedures instituted which form the foundations of current maritime policy. The main thrust of maritime policy since 1936 is as contained in Section 101--Declaration of Policy:

> TITLE I--DECLARATION OF POLICY
>
> SECTION 101. It is necessary for the national defense and development of its foreign and domestic commerce that the United States shall have a merchant marine (a) sufficient to carry its domestic waterborne commerce and a substantial portion of the water-borne export and import foreign

> commerce of the United States and to provide shipping service on all routes essential for maintaining the flow of such domestic and foreign water-borne commerce at all times, (b) capable of serving as a naval and military auxiliary in time of war or national emergency, (c) owned and operated under the United States flag by citizens of the United States insofar as may be practicable, and (d) composed of the best-equipped, safest, and most suitable types of vessels, constructed in the United States and manned with a trained and efficient citizen personnel. It is hereby declared to be the policy of the United States to foster the development and encourage the maintenance of such a merchant marine. [Ref. 35]

To stimulate the American merchant marine, a system of fiscal aids was established. The first of these, authorized by Title V of the Act, was the construction differential subsidy, which was intended to aid shipowners in the purchase of new vessels and thus ensure the modernization of the American flag fleet through periodic replacement. The construction subsidy was provided to compensate shipowners for the difference in costs between U.S. and foreign shipyard construction. By equating shipbuilding costs domestically and abroad, the "differential" could be made up by the government in the form of a payment directly to the shipowner. In this way, shipowners could be encouraged to utilize U.S. shipyards rather than cheaper facilities abroad. In effect the result was to subsidize the shipbuilding rather than shipowning business in the United States. The availability of the subsidy maintained U.S. shipbuilding capacity and allowed that industry to compete for technical talent with other industries offering wages in excess of those offered abroad for similar skills. Subsidized construction was

provided only for operators holding operating subsidy contracts under the Act, and contracts for construction of merchant vessels could only be let after competitive bidding. The subsidy was computed by comparing actual cost of a vessel built in an American shipyard with construction of a similar vessel built abroad without regard for U.S. shipbuilder expenses. The difference was expressed in terms of a fraction of the domestic construction cost, and was originally limited to 33 1/3 percent of that cost. This limit was subsequently raised to a maximum of 55 percent of vessel construction cost after 1960.[2]

The second type of aid provided was in the form of an operating differential subsidy. Title VI of the Act authorized this subsidy, while Title IV had set a date of 30 June, 1937, for cancellation of the ocean-mail contract system that had preceded it in purpose [Ref. 36]. In its attempt to establish private shipping lines and a commercially viable American flag merchant marine after the First World War, the Shipping Board was faced with the reality that a privately owned U.S. merchant marine could not compete on equal terms with foreign competition. The Merchant Marine Act of 1928 had established the mail contract system to

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[2]Discussion of the construction differential subsidy is based on material provided in Chapter Four of Bread Upon the Waters: Federal Aid to the Maritime Industries, by Gerald R. Jantscher, which is highly recommended for a complete discussion of this and other types of federal aid to the merchant marine.

offset foreign competitive advantage, but the administration of this system was both inefficient and ineffective [Ref. 37]. The result, taken after Congressional debate and a final decision to support a privately owned rather than a government owned and operated merchant fleet, was the system of direct public subsidies enacted in the Merchant Marine Act of 1936. Safeguards were implemented, and, as originally approved, the subsidy was limited to liner services (passenger and cargo). Liners are defined as "common carriers, sailing along fixed routes on regular schedules and accepting cargoes from many different shippers for delivery at ports along their routes" as opposed to irregular carriers which sail "wherever business takes them" [Ref. 38]. Thus vital trade routes could be maintained by a subsidy calculated to just offset the difference between operation of American and foreign ships.

The areas determined as in need of subsidization by the Act included shipping repairs not covered by insurance, higher insurance costs, crew wages, and subsistence for officers and crew. The operating differential subsidy remained in effect virtually unchanged until 1970, when provisions were modified for expansion of eligibility and the subsistence differential was eliminated.[3]

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[3]Jantscher, op. cit., Chapter Three, provides the material on which the discussion of operating differential is based.

The Merchant Marine Act of 1936 also created the United States Maritime Commission to oversee and administer the American maritime program. It assumed the functions of the Shipping Board, as broadened under provisions of the Act. The Commission retained responsibility until 1950, when it was abolished by executive order and its responsibilities divided between the Maritime Administration (promotional duties) functioning as part of the Department of Commerce, and the Federal Maritime Board (regulatory functions).

Although additional Titles of the Act covered working conditions for American Seamen (Title III) and contracting for service routes and subsidies (Title VIII), perhaps the most significant single feature of the Act from a defense standpoint was contained in Title IX--Miscellaneous Provisions. Section 902(a) of that Title stipulates that:

> SEC. 902. (a) It shall be lawful for the Commission to requisition any vessel documented under the laws of the United States, during any national emergency declared by proclamation of the President, and when so taken or used, the owner shall be paid the fair actual value of the vessel at the time of taking, or paid the just compensation for the vessel's use based upon such fair actual value (excluding any national defense features previously paid for by the United States), less a deduction from such fair actual value of any construction differential subsidy allowed under this Act, and in no case shall such fair actual value be enhanced by the causes necessitating the taking. In the case of a vessel taken and used, but not purchased, the vessel shall be restored to the owner in a condition at least as good as when taken, less reasonable wear and tear, or the owner shall be paid an amount for reconditioning sufficient to place the vessel in such condition. The owner shall not be paid for any consequential damages arising from such taking or use. [Ref. 39]

Section 902 thereby expressly stated the relationship of the American merchant marine to the defense requirements of the country, and conditions under which ships "documented under the laws of the United States" could be converted to military control. The term "documented under the laws of the United States," however, limited the President's authority to ships of the U.S. flag fleet. This was subsequently changed by an amendment to the Act on 7 August, 1939, which expanded Presidential authority as follows:

> Whenever the President shall proclaim that the security of the national defense makes it advisable or during any national emergency declared by proclamation by the President, it shall be lawful for the commission to requisition or purchase any vessel or other watercraft owned by citizens of the United States, or under construction within the United States, or for any period during such emergency, to requisition or charter the use of any such property. [Ref. 40]

With this modification, the concept of "effective" Presidential control over shipping assets owned by U.S. citizens and registered abroad was established. This concept is retained in U.S. law and is the basis for current defense mobilization guidance.

E. THE EVOLUTION OF FOREIGN FLAG REGISTRY

1. Genuine Link

Arguing a contrario from art. 5, para. 1 of the unratified Convention on the High Seas,[4] one can define flags of

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[4]United Nations Conference on the Law of the Sea, Official Records 2:135 (1958) (Doc. A/CONF. 13/L.53). Exerpt from Flags of Convenience: An International Legal Study, by Adam B. Boleslaw.

convenience as . . . such flags "under which there exists no genuine link between the state and the ships, and, in particular, under which the state does not effectively exercise its jurisdiction and control in administrative, technical, and social matters over ships flying its flag." [Ref. 41]

Registration of ships by nationals of one country under the flag of another country is not a new occurrence. Historically documented cases of such registration are numerous. In the sixteenth century, English merchants often sailed under the Spanish flag in order to avoid monopolistic Spanish restrictions on the lucrative West Indies trade [Ref. 42]. In the seventeenth century, Newfoundland fishermen sailed under the French flag to avoid deportation by their home country, England, because of feared competition in the fishing industry [Ref. 43]. During the Napoleonic period, English vessels were registered under the colors of the German principalities of Knyphausen and Pappenburg to avoid the French continental blockade [Ref. 44]. Even as late as 1871, Swiss ships were registered under other European flags, including German, because the Swiss Federal Council refused registry under the Swiss flag because there was at that time some doubt whether a landlocked country had the right to grant nationality to its ships [Ref. 45]. One feature that all nations granting the use of their flag to citizens of another nation had in common, however, was a strong maritime tradition. Thus a "genuine link" was established between the "runaway" ships and the nation granting use of its flag

in that it could both defend and exercise control over the shipping that had been attracted by its flag.

Shipowners desiring registry of their vessels abroad also have historically had several things in common: (1) they generally seek registry abroad to avoid undesirable conditions imposed by domestic registry; and (2) they usually choose to register in a country offering some form of advantage over the nation of which they are citizens. In the twentieth century, the foreign registry system has evolved in such a manner that advantage may be offered without the normal requisites of ability to protect and control. This startling new development has shaken the very roots of the foreign registry system, and has brought about a controversy which has yet to be resolved.

2. The Evolution of Panamanian Registry

In 1901, U.S. interests owned and registered abroad 136 ships of 672,000 gross tons [Ref. 46]. For all intents and purposes, the entirety of these ships of foreign registry were attached to the flags of established maritime nations. Gradually, through a peculiar set of circumstances, this was to change. On 4 November, 1903, Panamanian Independence from Colombia was declared, ostensibly with U.S. backing and military guaranty. On 18 November, 1903, Secretary of State John Hay signed the Hay-Bunau-Varilla Treaty with Panama "granting to the United States in perpetuity the use, occupation and control" of a canal to be built on the Panamanian isthmus.

In this new treaty, except in the preamble, no mention was made of Panama's sovereignty. Panama "granted" to the United States "all the rights, power and authority within the (canal) zone . . . which the United States would possess and exercise if it were the sovereign of the territory . . . to the exclusion of the exercise by . . . Panama of any such sovereign rights, power, or authority."[5] Thus a link was directly established between the two nations, with Panama considered by the United States government to be a functional dependency. The development of a shipping registry system whereby U.S. shipowners were attracted to the Panamanian flag to evade restrictive U.S. legislation was, therefore, a natural course of events.

In 1919 the Belen Quezeda became the first foreign-owned ship to be registered in Panama [Ref. 47]. Prior to that time, Panama had an extremely modest association with the seafaring tradition, her experience being limited to coastal trade. In addition to the close relationship developed subsequent to the Hay-Bunau-Varilla Treaty, a peculiarity of Panamanian low facilitated registry under her flag. Based on Colombian Law, the Panamanian Fiscal Code allowed vessels to be registered through Panamanian consuls abroad [Ref. 48]. This law was originally intended to permit

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[5]Discussion of the relationship between the United States and Panama regarding exercise of sovereignty is based on material contained in The Truth about the Panama Canal by Deneson Ketchel.

purchase of vessels abroad by Panamanian citizens for subsequent permanent registry when the vessel finally arrived in Panama. Additionally, American consular officers were charged with representing Panamanian interests in ports where no Panamanian consuls were assigned on instructions issued in 1916 [Ref. 49]. This further enhanced the attractiveness of Panamanian registry when, also in 1916, Panama opened its flag to ships owned by Panamanian corporations which were in turn owned by foreigners [Ref. 50].

The Belen Quezada, transferred from Canadian to Panamanian registry in late 1919, was owned through a Canadian corporation in which U.S. citizens retained a minority interest. The ship was seized in February, 1921, by Costa Rica during a longstanding border dispute with Panama. While Costa Rica claimed the ship as a valid prize of war, Panama maintained that the United States retained an obligation to look after its citizens even though they were minority owners.[6]

> The State Department position, that the interests of American owners of a Panamanian-registered ship legitimately were protected by the United States, resulted in a fruitless deadlock in this case, but it was based on a sound tradition of maritime law and would serve as a precedent to be cited later. To penetrate behind the flag of registry to the nation of the owner in a search for responsibility and the claim to diplomatic protection was to become an essential ingredient in the later fully evolved flag of convenience. [Ref. 51]

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[6]Discussion summarizes a more complete treatment of the Belen Quezada case as contained in Chapter 1 of Sovereignty for Sale, by Rodney P. Carlisle.

Subsequent to the Merchant Marine Act of 1920, the Shipping Board found itself in an awkward position. In establishing the Board, Congress had stipulated a mandate against transfer of the most valuable shipping assets to foreign flags. Yet the Shipping Board was also required to divest a large government owned shipping excess in a world market experiencing a shipping glut. Thus the Board attempted to retain the valuable assets through charter-purchase arrangements set up with private firms. Some of these firms, however, accumulated debts to the point of bankruptcy. The debts having attached to the vessel, the Board was faced with their sale as government funds could not legally be used to pay off the debts in this case because the Board had been made a receiver of the ships in question. To sell the ships at the current low market value would have amounted to placing the buyer in a favorable position at the expense of his operational competition. To circumvent this situation, the Board authorized for sale in 1922 six major freighters to American firms with the stipulation that they be subsequently re-registered under a foreign flag to take them out of direct competition with American flag ships. Pacific Freighters, a San Francisco based company, purchased the vessels and subsequently re-registered them in Panama. An official of the company stated that the attraction to the Panamanian flag was relief from periodic boiler and hull inspections and regulations relating to crews' quarters and

subsistence, as well as rather low registry fees and yearly net tonnage taxes.[7]

Thus, for the first time, a valuable ship had managed to achieve transfer to a flag providing a more competitive situation even though this was not the legislative intent of Congress. Still, legislation prevented large-scale defections to other flags, and, as was the American practice since 1884, signature of a standard employment contract enforcing congressionally approved standards in the presence of an American consul or shipping commissioner by an American seaman signing on with any vessel was still required [Ref. 52]. Additionally, requests for arbitration on unfair business practices proved costly and time-consuming thus eliminating the possibility of widespread labor manipulation through registry in Panama or anywhere else, for that matter.

A more visible transfer to Panamanian registry occurred in October, 1922, with the transition from the U.S. to the Panamanian flag of two passenger liners, the Reliance and the Resolute. Built in Germany, these ships were transferred to the Dutch after launching in 1920 to avoid Allied confiscation. This transfer was found to be unacceptable by the Allies, however, and the liners were subsequently sold to the American Ship and Commerce Corporation owned by W. Averell Harriman. At the time of the sale, the Shipping Board

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[7]Discussion based on material presented in Chapter 1 of Sovereignty for Sale by Rodney P. Carlisle.

stipulated that transfer to foreign registry would be allowed within a period of three years if American Ship could not operate the vessels at a profit under American registry. At the time, the Eighteenth Amendment and the Volstead Act in effect since January of 1920 enforcing it was interpreted by the Department of the Treasury and the Attorney General to extend to American ships on the high seas, which were identified as territories as covered under the Prohibition Amendment and the Volstead Act.

To avoid the potential loss of profit inherent in such a ruling, Harriman transferred the ships to the flag of Panama immediately on acquisition. As a measure of national prestige, the liners drew considerable public attention in their transfer of registry. Although the extension of Prohibition to American ships outside the three-mile limit was overturned in mid-1923, an important precedent had been set. The Harriman Corporation, in attempting to justify the transfer, stated that "The Panama flag will probably be the one most acceptable to the interests of the United States both in the development of its trade and as regards availability in time of military necessity" [Ref. 53]. Though this assertion of national policy may have been influenced by the State or War Departments, its accuracy was to be proven beyond a doubt less than two decades hence.[8]

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[8]Discussion based on material presented in Chapter 1 of Sovereignty for Sale by Rodney P. Carlisle.

3. Panama--Sovereign State or American Puppet?

Under pressure from the United States to clarify its maritime code, Panama passed a comprehensive maritime law in January, 1925 [Ref. 54]. This law clarified what had previously been a haphazard set of individual legislative initiatives, and was clearly designed to favor the convenience and interests of shipowners and increase registration fees in a period of economic stagnation in Panama while still attracting shipowners to the Panamanian flag.

With the number of ships of Panamanian registry on the increase, the United States sought to exercise a measure of influence over the jurisdictional rights of Panama over her flag vessels. In June of 1924, a convention was signed with Panama allowing the United States to board vessels flying the flag of Panama suspected of liquor running or smuggling up to one hour's steaming time outside the recognized three-mile national territorial limit [Ref. 55]. This was similar to agreements reached with seventeen other nations between 1924 and 1930 [Ref. 56]. Again under U.S. pressure, an act was passed by Panama in December of 1926 authorizing "the cancellation of Panama registry of vessels habitually engaged in smuggling, illicit commerce, or piracy" [Ref. 57].

The United States liberally interpreted this law and the previous agreement with Panama in actual practice. This, in turn, resulted in a direct confrontation with Panama over the issue of sovereignty. While the United States operated

under the assumption that "known smugglers" were automatically deprived of Panamanian registry and could thus be boarded on the high seas as without flag, Panama determined that the convention of 1924 prohibited this and procedurally progressive steps would be instituted after a complaint was passed to the Panamanian government before registration would be revoked. A clear distinction was made between Panamanian sovereignty over ships flying the Panamanian flag and U.S. sovereignty over citizens owning those ships in this interpretation. Aware that Article 18 of Panama's constitution permitted the United States to be called in to supervise Panama's elections, a provision that could be exercised liberally, and that the sovereignty issue was extremely sensitive in Panamanian politics, the U.S. decided not to press the matter but to rely on the good will of the Panamanian government to adhere to U.S. interests. Thus the United States at once recognized the dependency relationships of Panama and Panamanian sovereignty in relation to ships flying its flag.[9]

Other occurrences during the 1920s that accompanied the evolution of Panama's maritime law included an increase in designated consuls capable of expediting registration and the assignment of separate radio call signs by the International Bureau of Radiotelegraphy in 1923 [Ref. 58]. With

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[9]Discussion based on Chapter 1 of Sovereignty for Sale by Rodney P. Carlisle.

all the refinements in Panamanian ship registration procedures, only about thirty transfers from American to Panamanian registry were authorized by the Shipping Board during the 1920s [Ref. 59]. This was so primarily because of restrictions imposed by the Shipping Board. American registry required that a majority share in ownership be held by a U.S. citizen. This was not a requirement imposed by many other nations, however, and the ability to purchase and register ships abroad through foreign-based corporations provided a potential for lucrative transfer to the flag of Panama.

4. Expansion of Panamanian Registry

In disposing of excess government owned shipping in the 1920s, the Shipping Board approved significantly more transfers to established flags of registry (England, Norway, etc.) than to Panama. The financial incentives, as well as the military security provided by the United States for Panama under the Hay-Bunau-Varilla Treaty of 1903, made the attractiveness of Panamanian registry commercially obvious at an early stage. Two large-scale transfers to the flag of Panama demonstrated potential advantage even more.

In 1928, United Fruit Company transferred six large banana transport vessels from British to Panamanian registry. Seven more were transferred between 1930 and 1931 [Ref. 60]. Since these vessels had been initially constructed and registered outside the United States, no Shipping Board

authorization was required for the transfer. The desire by United Fruit to expand plantation holdings in Panama, and the fact that operations were actually conducted out of Panama and the surrounding area, undoubtedly played a part equally as important as the reduction of operating costs in facilitating the decision. In 1935, a larger fleet of 25 tankship vessels totalling 230,000 tons was transferred by Standard Oil of New Jersey (ESSO) from the Free City of Danzig to Panama [Ref. 61].

Article 105 of the Treaty of Versailles stipulated that inhabitants of territories severed from Germany under the terms of the Treaty would become citizens of the territory in which they resided [Ref. 62]. Because of this, they would not be subject to German reparations payments, including confiscation of ships. No prohibition was enforced against the transfer by sale of ships still under construction in Germany prior to the Treaty coming into force on 10 January, 1920. This loophole was used to transfer four ships to ownership in Danzig, and profits were reinvested in ships constructed subsequently in Germany by Bapico, the Baltic subsidiary of Standard Oil [Ref. 63]. In that Danzig was tied politically to Poland, the adherence by that country to the Hague Convention of 1907 which permitted the impounding of vessels of an enemy on the outbreak of hostilities in early 1935 presented Standard Oil with a serious problem [Ref. 64]. Rather than risk the possibility of having assets

confiscated should Poland find herself at war, the option to transfer assets to Panama (where they could be operated not only with U.S. protection but also under a sovereign flag unlikely to be engulfed in a European conflict) was taken. This group of ships was to play an important part in support of U.S. interests during the Second World War. It also doubled the tonnage under registration in Panama at that time [Ref. 65].

The Roosevelt administration during the late 1930s was motivated by a growing concern for the military utility of available shipping assets as the possibility of a war in Europe came closer to reality. Therefore, few transfers away from American registry were permitted. Nonetheless, American companies, as well as those of other nations, were beginning to realize the potential for manipulating both commerical and political situations to advantage through utilization of Panama's rapidly evolving system of shipping registration. As fear of war increased during the rise of Facism and Nazism, as well as during the Spanish Civil War (1936-39), the Panamanian flag became a refuge for many shipping interests desirous of negating the potential for significant commercial loss. Documentation indicates transfer to the Panamanian flag of registry by shipowners from Sweden, Germany, Denmark, Holland, France, Algeria, Egypt, Turkey, Rumania, Bulgaria, Japan, and even China after the Japanese invasion of 1937, took place between 1935 and 1939 [Ref. 66].

F. EVASION OF NEUTRALITY

Germany invaded Poland on 1 September, 1939, and Britain responded by declaring war on Germany on 3 September. Neutrality legislation, prohibiting American vessels from operation in the war zone, was enacted in November [Ref. 67]. American rearmament was initiated with a $1 billion supplemental appropriation in May, 1940, and Lend-Lease was authorized for Britain the following January with 50 tankers released to the British in May [Ref. 68]. Previous neutrality legislation, enacted in 1935 and 1937, however, set the tone for maritime policy during the period of U.S. neutrality prior to declaration of war in December, 1941, by requiring the President to announce a state of war and embargo the sale of weapons to belligerents on either side [Ref. 69].

The neutrality legislation of 1939 had a provision whereby the United States would permit the sale of goods, including weapons, could be transacted on a "cash-and-carry" basis. This being accompanied by a prohibition against operation of American vessels in a declared war zone in the eastern Atlantic, and the British exercising effective control of the seas at that time, the Cash-and-Carry Act was intended to aid the British in the war effort without overtly rejecting the American position as a neutral in the conflict. Because British shipping was already spread thin and American ships were prohibited from trade directly with Europe, the status

of Panama as a neutral not subject to American neutrality legislation regarding shipping was seen as a means of conducting trade, especially in agricultural and petroleum products, without risking U.S. involvement in the war effort.

Where initially ships of Canadian and British registry owned by American citizens were utilized as a means of conducting cash-and-carry without violating neutrality, the benefits of Panamanian registry for this purpose were not seen until later. An emergency meeting of Pan-American states was held in September and October, 1939, in Panama which effectively extended the territorial waters of American states south of Canada to 300 miles, in violation of previous practice and traditional international law, and extended the recognized right of angory to neutral seizure of belligerent shipping by recognizing as legal all transfers of ships to an American republic [Ref. 70]. Previously, the right of belligerents to seize neutral ships within their territorial waters was accepted under international law. The right of neutrals to do this, however, was not an established legal practice at the time, and was in fact subsequently rejected by the British and French [Ref. 71]. While this provision of the inter-American agreement was instituted to facilitate seizure of German shipping in the American theater, it proved to be far more useful in the transfer of ships of American registry to the flag of Panama to aid the Allied war effort without violating neutrality. Standard Oil Company of New

Jersey (ESSO), along with other proprietary lines and individual shipowners, joined those who had earlier in the 1930s transferred ships to Panamanian registry to enhance their commercial position. The Merchant Marine Act of 1936, as amended in 1939, would provide, on subsequent declaration of war by the United States, a means of effectively returning the portion of Panamanian shipping that was of U.S. ownership to American control. In fact, some forty Danish ships seized in U.S. ports under the provisions of the Pan-American conference were subsequently transferred to Panamanian registry to be used in the effort to resupply the Allied war effort [Ref. 72]. This was a clear case of American exercise of the political relationship with Panama to avoid overt rejection of neutrality.

G. THE EMERGENCE OF THE UNITED STATES MERCHANT MARINE--NEW EMPHASIS ON DEFENSE

1. World War II

Throughout the Second World War the merchant marine served this nation well. After U.S. entry into World War II, some two million tons of U.S. controlled open registry shipping sailed alongside U.S. flag vessels throughout the war [Ref. 73]. In early 1942, a War Shipping Administration (WSA) was established by President Roosevelt as an adjunct to the Maritime Commission, both of which were placed under the chairmanship of Admiral Emory Land [Ref. 74]. The WSA directed American wartime maritime policy and was responsible

for shipping acquisition including construction and charter arrangements. The Maritime Commission had started the expansion of the U.S. merchant marine with a program to construct 50 ships per year beginning in 1939 [Ref. 75]. Before U.S. entry into the war, approximately six million deadweight tons of shipping had been contracted [Ref. 76].

Between 1942 and the end of hostilities in 1945, over five thousand ships were delivered at a construction cost in excess of $12 billion [Ref. 77]. At peak production, U.S. shipyards were operating at a construction rate which was capable of reproducing the entire prewar tonnage of the U.S. flag merchant fleet in only sixteen weeks and the entire world fleet in under three years [Ref. 78].

In March of 1942, the Merchant Marine Act of 1936 was amended to allow war-risk insurance to be offered to American-owned vessels of defense utility registered in Central and South American nations [Ref. 79]. Only Panama, Honduras, Nicaragua, Costa Rica and Guatemala, however, had provisions of law permitting registry of foreign owned vessels [Ref. 80]. Panama's flag attracted by far the most foreign shipping, with the Panamanian fleet reaching over 250 ships by mid-1942 [Ref. 81]. During the war, over 150 Panamanian-registered ships were captured or sunk, with a loss of over 1,500 crewmen [Ref. 82].

Data from the War Shipping Administration indicates that in 1944 outbound war-related dry tonnage included:

Army, 22.7 million tons; Navy, 6.6 million tons; Lend-Lease, 16.4 million tons [Ref. 83]. Only 15 percent of the 3,500 ship U.S. dry cargo fleet was placed under military custody [Ref. 84]. Tanker construction alone in the United States accounted for 394 ships between September 1939 and 1941, and a total of 10,044 during the period 1942 to 1945 [Ref. 85]. Total U.S. tanker tonnage in September, 1939, had been only 2,755,000 tons in 377 ships [Ref. 86]. Of these and additional tankers to be built subsequently, as many as 304 were placed in British control and service before war was declared by the United States [Ref. 87]. To totally appreciate the magnitude of the shipbuilding effort in the United States during World War II, a statistical comparison is necessary:

> On September 1, 1939, the U.S. fleet was the second largest in the world, with 13.9 percent of the gross registered tonnage of all the world's oceangoing commercial steam and and motor ships of 1,000 gross tons and over. Only the fleet of the United Kingdom was larger, with nearly twice the tonnage of the American fleet. On December 1, 1946, the U.S. fleet contained 50.6 percent of the world's tonnage. [Ref. 88]

Despite emerging from the war with over half of the world's shipping, U.S. wartime losses were great. Total wartime losses of tanker ships alone came to 1,421,000 deadweight tons [Ref. 89]. This does not include over 30,000 deadweight tons lost during the period of neutrality, or the 516,000 deadweight tons of Panamanian tanker tonnage lost throughout the period of hostilities [Ref. 90].

The concept of effective control over shipping of U.S. ownership, which had openly been encouraged to transfer to Panamanian registry, was thus proven to be of great practical value. The political links, even to the point of shared sovereignty between the United States and Panama, as well as the dependence of Panama militarily on the U.S. and inability of that nation to challenge the United States navy on the high seas, made the relationship ideal for facilitating war related commerce. In reality, the War Shipping Administration dictated Panamanian maritime policy during the war. At completion of hostilities, however, the continuation of this relationship was to be called into question.

2. The Post War Period--Military Exigencies of Effective Control

While U.S. shipping had quadrupled in tonnage during the war years, the rest of the world's merchant tonnage had been diminished by one-third [Ref. 91]. In rebuilding the world's economic structure after the war, this factor was taken into consideration. By war's end, the U.S. flag fleet included nearly 4,500 vessels suitable for commercial use [Ref. 92]. The Merchant Ship Sales Act of 1946 was passed to provide guidance for the disposition and sale of the government's 4,000-ship merchant fleet to U.S. citizens and American allies [Ref. 93]. By the end of the authority granted by the Act, the Maritime Commission had sold more than 1,100 ships for foreign registry and 823 to U.S. citizens [Ref.

94]. By December, 1949, the U.S. flag fleet included 644 dry cargo ships, 37 combination passenger and cargo ships, and 420 tankers as well as 111 government-owned ships on charter to private companies [Ref. 95]. Sales from the U.S. inventory had also brought the assets of other maritime powers up to pre-war standards.

The importance of the merchant marine had been so vividly demonstrated during the war that new emphasis was placed on the defense related aspects of that industry. As before the war, the competitive setting faced by shipowners made foreign flag registry seem attractive. Since the efficacy of effective control over assets transferred to Panamanian, Honduran, etc., registry during the war had been demonstrated, and since excessive subsidization to maintain a large and competitive U.S. flag fleet was not economically feasible in the post-war period, an effort was made to refine the effective control concept to bring it in line with U.S. defense needs.

In 1945, the Joint Chiefs of Staff considered the role of U.S. merchant shipping as an instrument of national defense as follows:

> To be effective as an instrument of national defense U.S. merchant shipping should be under U.S. flag or <u>effective U.S. control</u> and should be of such capacity that it is able to absorb substantial initial losses which may be occasioned by either a surprise attack or an efficient submarine and air interdiction of sea lanes, or both, and still perform the following services:
>
> a. Provide logistic support for forces of the U.S. which may be overseas at the time of the emergency.

b. Transport U.S. forces to overseas destinations and maintain such forces.

c. Maintain the economic war making capacity of the country. (Emphasis added) [Ref. 96]

At the same time, the Joint Chiefs of Staff also defined effective U.S. control:

> The term 'effective United States control' as applied to shipping is considered to include all shipping which can be expected to be available for requisition by the United States Government in time of national emergency even though such shipping may not be under the United States flag. When ships earmarked for the National Defense pool are chartered by agencies other than United States nationals, agreements should be made to return these ships to United States Government control if required for war or emergency purposes. (J.C.S. 1454/1) [Ref. 97]

In 1947, the Joint Chiefs of Staff expanded and clarified that definition as follows:

> The term 'effective United States control' as used in J.C.S. 1454/1 appears to be inadequately defined. On a number of occasions doubt as to the meaning of the term has arisen. Except through agreement there are no legal means by which the United States can regain control of a United States merchant vessel the registry of which has been transferred to another country. From a legal standpoint therefore it can be considered that the only time a vessel is under absolute 'effective United States control' is when it flies the United States flag. Actually, however, there are certain countries in this hemisphere which through diplomatic or other arrangements will permit the transfer to their registry of United States ships owned by United States citizens or United States corporations to retain control of these vessels. Prior to entry of the United States into World War II, United States vessels were transferred to Panamanian registry for the purpose of rendering aid to the allies. Such a case as the above can be considered to be within the meaning of the term 'effective United States control'. When the foreign authorities who are in a position to dictate to the owner, master, crew, charterer or other individual or agency having physical control of the vessel are willing and able to bring the vessel under control of the United States in an emergency for such use as the United States may wish to make of the vessel, such vessel may also be considered to be under

'effective United States control'. It can be concluded, therefore, that the primary considerations in determining whether or not a United States merchant ship registered under a foreign flag would still be under 'effective United States control' are:

a. The practice followed in the past in regard to transfer of United States merchant vessels to foreign registry.

b. The status of diplomatic relations between the United States and the foreign country concerned.

c. Its relations with countries opposed to our system of government or foreign policy.

d. Proximity of the foreign country to the United States.

e. The stability of its government. (J.C.S. 1454/11) [Ref. 98]

Two other governmental initiatives structured the relationship of the government maintained fleet and the U.S. flag fleet to defense requirements. As an adjunct to the carrying capacity of regular Navy ships, a fleet of government owned ships in the technical custody of the Navy but predominantely crewed by civilians in the employ of the government was set up. This fleet was designated the "nucleus fleet," and was set up to be administered by the Military Sea Transport Service (Military Sealift Command since 1970) which was established in 1947. The functions of the Military Sealift Command will be considered in greater depth in Chapter III.

In 1954, the size of the nucleus fleet was limited by agreement between the Secretaries of Defense and Commerce (Wilson-Weeks agreement) to no more than fifty-six transports,

thirty-four cargo ships, and sixty-one tankers unless under conditions of full mobilization [Ref. 99]. Less than two months later, the Cargo Preference Act of 1954 was signed into law [Ref. 100]. Covering three classes of goods: goods bought by the government for its own account; goods provided by the government for the account of another nation, if not paid for by that nation; and goods for which the government had advanced funds, granted credits, or guaranteed the convertibility of foreign currencies, fifty percent of such shipments, by gross tonnage, moved by sea must be carried by privately owned U.S. flag vessels if available [Ref. 101].

Although a 1904 law required that all military shipments be carried by ships of U.S. registry or maintained by the U.S. government, the Cargo Preference Act of 1954 placed the additional requirement that at least fifty percent of military cargoes must be carried by privately owned U.S. flag ships. This provision effectively took the government out of direct competition with private lines, and provided a stimulus to the size of the U.S. flag fleet. Thus together with mothballed assets, the commercial U.S. flag fleet, the government maintained fleet, and the effective U.S. control fleet make up the backbone of shipping capacity on which the United States must rely in a crisis situation.

H. THE GENESIS OF LIBERIAN REGISTRY[10]

As the United States divested itself of the great excess in shipping created during the Second World War, registry in countries where maritime legislation proved convenient to the shipowner increased greatly. Such was the case in Panama, where the maritime code had evolved over time specifically to attract foreign shipping. Of the ships sold under the Merchant Ship Sales Act of 1946, 152, predominantly U.S. tankers, were registered in Panama, increasing the total Panamanian flag fleet from 268 ships in 1945 to 406 in 1946 [Ref. 102]. By 1948 the Panamanian registry system had reached over 3 million tons and 515 ships [Ref. 103]. With this increase, however, had come a corrupting influence both in the consular system of collecting fees and the administration of the registry system in general.

Along with the growing problems associated with registry under Panama's "flag of convenience" were two other rapidly developing areas of concern. First, with resumption of subsidies under the Merchant Marine Act of 1936 that had been set aside during the war years, the advantages of registry to avoid U.S. maritime legislation and labor restrictions were again evident. Though merchant crews with national ties to the Axis Powers had been successfully removed from Allied

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[10]The entirety of this section is based substantially on material presented in Chapter 7 of Sovereignty for Sale by Rodney P. Carlisle.

owned ships prior to and during the Second World War (thus creating an increased labor market for American seamen), this trend had reversed in the years following the war causing great concern in American seamen's unions. Second, growing antagonism on the part of the Panamanian population and leadership against colonial aspects of the position of the United States in Panama called into question the reliability of the dependency relationship which had given shipowners all the advantages of U.S. protection and legal backing while sailing under the flag of Panama.

At this same time Edward R. Stettinius, Jr., former Secretary of State under Franklin D. Roosevelt, was aware of the commercial prospects for the African nation of Liberia. Situated on the west coast of Africa, Liberia had ties with the United States equally as strong as Panama's. "Founded in 1822 by black American settlers financed by the American Colonial Society, Liberia had grown from a string of isolated colonies of liberated American slaves and freemen into a self-governing commonwealth by 1839. In 1847, the commonwealth declared its independence and became the first republic in Africa" [Ref. 104]. In 1944 the President, W.V.S. Tubman, had been elected on an "open door" platform promising recruitment of foreign investment, thus opening the door for Stettinius and his corporate development group, Stettinius Associates [Ref. 105].

Unlike Panama, Liberia had a modest maritime tradition in the mid-nineteenth century, her fleet reaching 300 sailing ships, mostly of local design, construction and ownership [Ref. 106]. By 1900 this coastal fleet had been made nearly extinct by foreign competition and the advent of steam power. Though Stettinius was primarily interested in a profit-sharing arrangement based on the exportation of iron ore, he was quick to see the potential for developing a shipping registry system to rival that of Panama. In his former position, he recognized the strategic position of Liberia, which was built up as a jumping-off point for U.S. forces during World War II. The port of Monrovia, improved during the war by the U.S. Navy, would provide an excellent port for the transport of iron ore. Having tanker ships already registered in Panama, Stettinius was also well aware of the problems developing in that country.

The result of this combination of situations and opportunities led to the creation of a maritime code tailor-made for and approved by many of the larger proprietary shipping lines. Since the subsidies associated with the Merchant Marine Act of 1936 did not apply to tankers, either independently operated or part of a company owned line, the convenience built into the Liberian maritime code were particularly appealing to the larger oil companies that were not completely satisfied with Panamanian registry.

The Stettinius group drafted, between April and July of 1948, a corporation code for Liberia. By 21 July of that year the maritime code was drafted [Ref. 107]. Delays in implementation came about while the draft law was cleared with the major oil companies. An attempt was also made to achieve the approval of the U.S. Department of State on the proposed legislation. Personality conflicts and a change of administration prevented ready acceptance by State, and the draft degislation was forwarded with minor changes for action by the government of Liberia. The Liberian legislature passed the requested maritime code with minor changes in November, 1948, and it was signed into law in December of the same year [Ref. 108]. The improved aspects of Liberian registry and the Liberian maritime code, including the transfer of and initiation of registry through the International Trust Company office in New York rather than a consular network, set in motion a rapid movement by shipowners to the flag of Liberia. By 1955, in reality only seven years after passage of its maritime legislation, Liberia surpassed Panama in total tonnage registered [Ref. 109]. By 1956, Liberia also passed Panama in number of ships registered. Today, Liberia ranks number one in the world in terms of ships and tonnage flying its flag [Ref. 110].

I. RECENT DEVELOPMENTS IN U.S. MARITIME POLICY

1. U.S. Policy in Context

Since World War II, there has not been a national emergency which required the requisitioning of U.S. effective control vessels or, for that matter, American flag vessels [Ref. 111]. During the Korean conflict, as well as during the American involvement in Vietnam, U.S. flag and effective control vessels were both made available for use by their corporate ownership on a voluntary basis.

Several events of historical importance have shaped the composition and characteristics of the maritime assets of the United States. On July 19, 1956, John Foster Dulles announced the retraction of the loan offer to Egypt for construction of the Aswan Dam which prompted Nasser to announce nationalization of the Suez Canal Company and seizure of the Canal a week later [Ref. 112]. In 1967, during the Arab-Israeli conflict, the Canal was closed. In both cases, the potential for disruption of oil resources caused a diversification by both European nations and the United States in access to required oil as well as construction of larger tankships capable of rounding the Cape of Good Hope to maintain the flow of oil. The Suez crisis came at a time when ships constructed during World War II were nearing obsolescence and produced a natural transition to larger assets. Many of those assets were subsequently registered under flags of convenience in Liberia and Panama.

Modern economies are now tied inextricably to the availability of energy resources. Oil, unlike most other energy resources, can be easily transported, stored, and utilized commensurate with need. Oil today accounts for over half of world seaborne trade [Ref. 113]. For other than transportation of oil from Alaska's north slope, which is required by law to be carried by the American flag fleet, the United States relies almost exclusively on the effective control fleet for delivery of this vital resource. These same ships will play a key role should the United States become involved in a conflict situation, limited or otherwise.

As stated by Admiral James L. Holloway III, Chief of Naval Operations, in his policy statement of 1 March, 1978:

> The United States has plans for the utilization of foreign flag ships of the Effective U.S. Control (EUSC) Fleet. These are U.S.-owned or U.S. controlled ships of foreign registry of 1,000 gross tons or more, which are under contract to the Maritime Administration. These can reasonably be expected to be made available for U.S. use in time of emergency. [Ref. 114]

At no time during World War II, the Korean conflict, or at any time during the Vietnamese conflict did U.S. effective control vessels refuse to sail [Ref. 115]. This was the case even when Section 902 of the Merchant Marine Act of 1936, as amended, was not utilized to effect requisition. Through careful administration of the Merchant Marine Act of 1936, with few significant changes to the Act, United States maritime policy has progressed in such a way that both the economic and defense needs for a strong merchant marine have

been met. Though there are deficiencies in some areas, such as dry bulk carriers, more ships have been available since World War II than needed to meet both military and commercial requirements. Given current initiatives and market trends, there is no reason to believe that this situation will change appreciably in the near term.

2. Structuring Maritime Policy--The Last Decade

In 1969, the Maritime Administration proposed to congress a major ship construction program to modernize the U.S. merchant marine. The program, to be aided by construction differential subsidies called for 300 vessels to be built over a ten-year period [Ref. 116]. As vessels built near the end of World War II and during the mid-1960s were approaching block obsolescence, the program was designed to modernize in all areas of shipping, but primarily in the production of bulk carriers in that U.S. exports and imports were growing fastest and U.S. flag participation in bulk trades was the lowest [Ref. 117].

Accompanying this construction program was a revision of the Merchant Marine Act of 1936 passed by Congress in 1970 [Ref. 118]. This revision was in no way a significant departure from the original Act and served only to update it as necessary to recognize the realities of the 1970s. Thus American maritime policy has remained remarkably constant for over fifty years and should serve the nation's needs well during the next decade without a great deal of modification.

3. Emergency Requisition of Foreign Vessels

In 1979, the Emergency Foreign Vessel Acquisition Act was passed by Congress. Pursuant to Section 902 of the Merchant Marine Act of 1936 as amended by 46 U.S. Code Section 1242 to establish Presidential authority to requisition ships owned by U.S. citizens, the Act extends Presidential authority as indicated below:

> SECTION 196. Emergency foreign vessel acquisition; purchase or requisition of vessels lying idle in United States waters
>
> During any period in which vessels may be requisitioned under section 1242 of Title 46, the President is authorized and empowered through the Secretary of Commerce to purchase, or to requisition, or for any part of such period to charter or requisition the use of, or to take over the title to or possession of, for such use or disposition as he shall direct, any merchant vessel not owned by citizens of the United States which is lying idle in waters within the jurisdiction of the United States and which the President finds to be necessary to the national defense. [Ref. 119]

This Act, extending the right of angory described earlier to situations in which the United States has not declared war, is an established precedent in international law.[11] Not since French and Dutch ships were seized during World War II has this right been exercised by the United States. In those cases, because of German occupation, original crews were retained on requisitioned foreign vessels in most cases. To date, the Act passed in 1979 has not been utilized under

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[11]Legislative history of the Emergency Foreign Vessel Acquisition Act was provided by Mr. Thomas X. Schiff, Legal Counsel for Military Sealift Command, N.S.C. Oakland, California.

Presidential authority, and, therefore, no assessment of the response by other nations in the international community is possible.

4. Maritime Policy in Retrospect

The evolution of U.S. maritime policy can be seen as not too different from that of other nations. Because of a lack of comparative advantage in ship construction and labor costs, the ability to make use of the convenient aspects of foreign registry has not been prohibited. This has, unfortunately, placed American seamen who so courageously have served the United States in World War II and every conflict subsequently, in a position of competition with foreign seamen who will accept lower wages for jobs. The alternative, however, is a direct subsidization for them and the shipbuilding industry by the government. Replacement value alone of the ships of the effective control fleet would be over 40 billion dollars if built in U.S. shipyards [Ref. 120]. The cost of providing this same fleet, if registered under the U.S. flag, with operating subsidies would be at least 900 million dollars each year [Ref. 121]. Therefore, through economic practicality, the United States has found a balance between social justice and commercial necessity as well as between military requirement and military contingency.

Though the effective control concept may be well suited to American economic and defense needs, it has often come under fire from nations perceiving unfair economic

advantage as well as seafarers' unions claiming unfair labor practices. The next chapter will give some brief insights into how the assault on flags of convenience has been conducted, and of the results of those assaults.

III. INTERNATIONAL LAW AND REGISTRY UNDER FOREIGN FLAGS

A. FLAGS OF CONVENIENCE OR FLAGS OF NECESSITY?[12]

In the years immediately following World War II, the need for increased shipping capacity for the reconstruction of the European economy was immense. Governmental regulations and laws governing taxation of shipping profits in the United States, however, remained basically the same as prior to the outbreak of hostilities. Had the alternative of ship registration in Panama, Honduras, and Costa Rica not been available to shipowners, the result would undoubtedly have been higher transportation costs borne by the public through commodity price increases or subsidies. In times of necessity for additional shipping capacity, registration under flags of convenience provided an economic stimulus. Because the advantages available to shipowners with vessels registered under their same nationality through government relief and assistance were not available to other shipowners, registering vessels under foreign flags was, particularly during recessions, an economically viable recourse. Without an operating differential to cover potential losses, shipping

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[12]Arguments and discussions in this section are based almost exclusively on material presented in two excellent texts on the legal questions associated with registry under flags of convenience: Erling D. Ness, The Great PanLibHon Controversy, and Boleslaw A. Boczek, Flags of Convenience: An International Legal Study.

registered abroad to increase profitability operated more on the margin than that protected through governmental subsidization.

After the war the United States was not the only nation in a position where foreign registry was an incentive, or in fact a requisite for continuation of a strong merchant marine. Greek shipowners, threatened by the possibility of a Communist takeover of their government (as well as facing crippling taxation and regulation), saw foreign registry as both a refuge and an economic necessity [Ref. 122]. Maritime interests in other nations, for a variety of reasons, also became aware of and took advantage of Panamanian and other flags of convenience.

While legislation prevented the development of a merchant marine of optimum size in the United States after World War II, American reliance on foreign resources, and particularly oil, was increasing rapidly. After the war the United States, through its major oil companies, was the largest developer of foreign oil. Foreign subsidiaries of domestic companies also made them significant stockholders in oil production facilities throughout the world. To protect this interest, a large tankship capacity was necessary. Unable to support required development of this capacity under the U.S. flag for economic reasons, the alternative was to support investment by U.S. citizens in ships to be registered abroad. This registration could be either in: (1) nations with a strong maritime

tradition (which would necessitate a greater cost to the American consumer as well as the loss of assets to foreign requisition in the event of war); or (2) a nation offering a convenient maritime code whereby profits would be taxed at a low rate or not at all and would be subject to domestic taxation only when repatriated to the United States. Since resources could not be transported competitively under the U.S. flag, registry in Panama and later Liberia was a logical and acceptable alternative, from both an economic and governmental policy standpoint.

Another reason for the growth of flags of convenience after the Second World War was the availability of capital for ship construction. At that time, the United States was the only major nation of the world in a position to provide construction funding. Lending institutions, however, were reluctant to make capital available for ships that were to be registered in Europe where profits were subject to relatively high rates of taxation [Ref. 123].

European nations, in competition with PANLIBHON registry systems, saw the flight of vessels of U.S. ownership to these flags as unfair competition. British legislation prohibited citizens from registry under standard flags of convenience, but a similar situation for taxation and repatriation of profits was allowed through registration in Bermuda, a British Crown Colony. The British position, much the same as that of Norway and other large European maritime nations, was that

the United States should rely on foreign shipping rather than flags of convenience in both times of peace and war.

Rather than face loss of control of shipping in time of war or lose a large share of the international transportation industry to Europe resulting in higher domestic shipping costs, the United States was forced to support PANLIBHON registry. The alternative, economically and militarily, was unacceptable.

B. INITIAL ASSAULTS ON FLAGS OF CONVENIENCE

1. Points of Contention

It was not until the disposal of the excess government shipping capacity built up during World War II that flags of convenience developed to the extent that they were a serious threat to the flags of established maritime nations. Prior to that time, hostility against flags providing a haven for shipowners was confined mainly to the labor force that this type of registration affected adversely. Of primary concern to seamen in nations where a large percentage of shipowners registered their ships abroad was the displacement of jobs that would otherwise have been secured by national legislation (La Follette Seamen's Act of 1915, Section 13). This, of course, was seen as advantageous by individuals from other nations willing to accept the same jobs for lower wages, and to their national leadership because of the resultant decrease in unemployment. Of secondary, but still

great concern, was the lack of specifications in many cases for ship construction, habitability, inspection and safety under the maritime codes and enforcement practices.

Ship construction to meet specifications is conducted under the approval of a classification society, usually either Lloyd's Register of London or the American Bureau of Shipping, and with the supervision of their surveyors [Ref. 124]. Additionally, ships must be recertified every four years to retain their class [Ref. 125]. This being the case, construction practices of shipping registered under all the flags of the world are pretty uniform. Similarly, ships classed by Lloyd's or the American Bureau of Shipping are required to comply with the standards they set for strength, efficiency, loading and protection of openings above deck and in the superstructure [Ref. 126]. As a result the same safety standards apply to Panamanian, Liberian, etc., shipping as to the rest of the world's shipping.

When regulations setting standards for habitability, wages and messing are not imposed by law, savings can be made in the shipping industry by reducing standards to what the labor market will bear. Other than exemption from taxation, this condition is the most significant in making flags of convenience attractive. Arguably, however, this not only affects those who are forced to compete with foreign labor more likely to find marginal conditions acceptable. More importantly, it also decreases the leverage of labor

organizations in nations with protective legislation in that shipowners have the recourse of registration under flags of convenience.

2. Organizing the Opposition

Two distinct areas of opposition coalesced against flags of convenience after the war. The first included seamen's unions concerned about "allegedly lower labor standards" and the loss of job opportunities, particularly for U.S. seamen, resulting from foreign flag registration [Ref. 127]. The second was composed of the shipowners of traditional maritime nations. This group, including United States flag shipowners, was supported for the most part by their national governments and found that competition operating under virtual tax-free flags seriously threatened their operations [Ref. 128].

The first concerted effort to organize against flags of convenience took place in 1947 when consideration of problems associated with this type of registry was given by the Joint Maritime Commission of the International Labor Organization at the request of the International Transport Workers' Federation (ITF) [Ref. 129]. The result was, as declared by the ITF Congress which met in Oslo, Norway on 21 July 1948, that an international boycott of Panamanian and Honduran ships would be put into effect at some unstipulated future date by seafarers and dockworkers [Ref. 130]. Through 1950, the main emphasis of the ITF was on safety, crew competency

and shipboard conditions. At this point a new objective emerged, that being on obtaining collective agreements on wages and working conditions [Ref. 131]. No worldwide boycott action was taken to press for these goals for some time. Rather, between September of 1952 and December of 1957 isolated boycott action was taken against 23 separate ships [Ref. 132].

In 1958, when opposition to flags of convenience was reaching a peak, the two most powerful American maritime unions, the National Maritime Union (NMU) and the Seafarers' International Union (SIU) formed a coalition to oppose this type of registry [Ref. 133]. To counter this alliance, a number of the leaders in the maritime industry formed the Committee for Flags of Necessity on 7 November, 1958, with the avowed purpose of providing legal opposition to any actions by the unions directed against their interests [Ref. 134]. The position of the Committee was that, since tankers, ore ships and dry cargo tramps were not eligible for the government operating differential subsidy, they were forced to operate their vessels under foreign flags to remain competitive or be forced out of the shipping business. Their ships were operated on a standard of excellence comparable to that of the major European maritime nations, and they saw any move to regulate employment contracts through collective agreements as a challenge to relationships between governments.

In late 1958, the Fair Practices Committee of the ITF met and scheduled an international boycott against flag of convenience shipping for 1 to 4 December of the same year [Ref. 135]. One week before the boycott was to begin the American Committee initiated legal action to stop action of the type likely to be employed against members' ships. The unions countered by arguing that they were engaged in a labor dispute within the context of the Norris-La Guardia Act, which prohibited granting of injunctive relief by the Federal Courts [Ref. 136]. The judgment was rendered in favor of the unions, the Court thus determining that it had no jurisdiction and that the dispute, under provisions of Norris-La Guardia, came within the perview of the National Labor Relations Board [Ref. 137]. Thus, the worldwide boycott went into effect on 1 December and was conducted as planned.

The effect of the boycott was less dramatic than originally planned. Although 125 ships were affected in the United States only 8 in Canada and 30 in Europe and the rest of the world were singled out for action [Ref. 138]. The attacks were directed almost exclusively at American owned shipping. No attacks on Bermudan registry against British owned vessels were noted. The obvious intent of the international action was to compel American owners to abandon PANLIBHONCO registries or, in lieu of that, to place them in a position where they would have to acquiesce to have American unions represent foreign crews on their vessels [Ref. 139].

This arrangement, however, would have had serious negative consequences for foreign seafarers, unions and governments. By raising PANLIBHONCO wage rates and habitability standards to U.S. levels, foreign seamen would be displaced as American seamen entered the labor market. Representation by American unions would negate bargaining power as well as agreements already in effect as negotiated by foreign unions. Foreign earnings repatriated by seamen would be displaced as American seamen entered the labor market thus raising unemployment and adversely affecting balance of payments in several countries. In almost every instance, the gains made by American unions would result in direct losses in other areas of the world. Although shipowners in such nations as Britain and Norway strongly opposed convenience registry from a competitive standpoint, they also stood to lose from gains by organized labor. For these reasons, lack of cohesion made the international boycott far less effective than originally intended.

As a result of the failure to accomplish an international demonstration of solidarity, the ITF, led by the two major U.S. unions (NMU and SIU) changed its plan of attack. In January of 1959 it was mutually agreed by the Seafarers' Section of the ITF that jurisdiction for organization of crews would from that time forward be on the basis of the nationalities of the owners of the ships concerned rather than that of the crews [Ref. 140]. This would have affected even ships of U.S. registry as portions of the crews which

had been recruited in foreign ports, rather than receiving compensation in line with that of the nation in which they signed on, would receive standard rates which were invariably higher. This would have placed American owned shipping at a disadvantage in relation to virtually every other nation in the world. As a result, Mr. Clarance G. Morse, Chairman of the Federal Maritime Board, was prompted to state that proposed action by the ITF was "a major threat to the United States' mobilization plans" [Ref. 141]. Though the intent of the ITF was to raise the overall wage scales of seamen on an international basis, the intent of the American Unions was obviously to supplant foreign crews with U.S. crews. This caused a basis for contention which would ultimately cause the demise of the concerted union action.

Greek unions, as well as Greek shipowners who were often financed with U.S. capital, were perfectly happy with the contractual arrangements they had in effect. U.S. interference would only be detrimental to their own interests. In choosing vessels to be picketed in support of union objectives, the American unions often picked unwisely and injected themselves into foreign controlled situations. The resulting confrontations, as well as legal pressure brought by the American Committee and individual shipowners singled out for boycott, proved too fragmentary and too expensive for continued action. Even the essence of negotiated treaties prohibiting attempts by one nation to impose labor regulation

on ships of another nation entering territorial waters was called into question. The result was a rejection by the ITF of SIU attempts to exercise control over labor matters under the jurisdiction of a foreign labor organization and a split between the SIU and NMU. Although the National Labor Relations Board had noted in 1961 that it would exercise jurisdiction over PANLIBHON shipping if "grouping of contracts" substantiated a reasonable basis for such action, by the end of the year internationally orchestrated labor attacks on convenience registry were on the decline [Ref. 142]. The NMU was forced to adopt a course of action which could be pursued independently by the American unions, that being to require U.S. flag shipowners contracting with American unions to accept contracts for both their U.S. vessels and PANLIBHON ships of their ownership with the same contractual stipulations [Ref. 143]. The SIU also adopted this position. Though a large number of ships would potentially fall under the edict of the American unions, the outcome was by no means clear.[13]

Throughout the legal assault on flags of convenience one well-established aspect of international law remained in effect, that a vessel is subject exclusively to the law of the State of its registry and whose flag it flies [Ref. 144]. International treaties entered into by the United States

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[13]Discussion based on Chapters 6 and 7 of The Great PanLibHon Controversy by Erling D. Naess.

reaffirmed this principle. As legal actions against selective boycotts against individual ships by the American unions proceeded through appellate review, not only the nations directly under attack for their maritime practices but also such established maritime nations as Britain began to realize that their own interests would be jeopardized if the U.S. court system elected to retain jurisdiction over foreign merchant seamen for the National Labor Relations Board. The Board had adopted the approach that elections would be permitted aboard foreign flag vessels to determine their desire to be represented by American unions. Although the only elections held soundly rejected union representation, legal action was forthcoming from foreign unions whose jurisdiction had thereby been infringed upon [Ref. 145].

The culmination of the legal assault came on 18 February, 1963, when the Supreme Court ruled that the National Labor Relations Board was barred from exercising jurisdiction over "foreign-flag ships employing alien seamen" [Ref. 146]. Coupled with the fragmentation of unity internationally and between the major American unions, this setback eliminated for all practical purposes the most significant threat to the flags of Panama, Liberia, Honduras and Costa Rica.

C. INTERNATIONAL LEGITIMACY FOR FLAGS OF CONVENIENCE

In 1956, the International Law Commission adopted an article (Article 29) which stated that "Each State shall fix the conditions for the grant of its nationality to ships, for the registration of ships in its territory and for the right to fly its flag. Ships have the nationality of the State whose flag they are entitled to fly" [Ref. 147]. Previous to that, in 1948, the United Nations Maritime Conference had established the Inter-Governmental Maritime Consultative Organization (IMCO) [Ref. 148]. This body, while planned in 1948, didn't come into effect until March, 1958, when ratification of the IMCO Treaty by the required twenty-one States originally stipulated was completed [Ref. 149]. Article 28 of the IMCO convention stipulated that:

> (a) The Maritime Safety Committee shall consist of fourteen Members elected by the Assembly from the Members, governments of those nations having an important interest in maritime safety, of which not less than eight shall be the largest shipowning nations, and the remainder shall be elected so as to ensure adequate representation of Members, governments of other nations with an important interest in maritime safety, such as nations interested in the supply of large numbers of crews or in the carriage of large numbers of berthed and unberthed passengers, and of major geographical areas. [Ref. 150]

At the time, in terms of tonnage, Liberia ranked third and Panama eighth of all the maritime flags of the world [Ref. 151].

The question of "genuine link" again arose with the possibility of recognition of States associated with flags of convenience in an important international body. The

established maritime nations of Europe attempted to block Panamanian and Liberian inclusion on the Safety Committee because to include them would offer official recognition of legitimacy of status as well as give them significant influence on maritime matters which the established nations wished to withhold. Even with U.S. backing, neither Panama or Liberia was elected to membership in the Committee.

After the election had taken place, a resolution by the Liberian delegation requesting that Article 28 be submitted to the International Court of Justice at the Hague for interpretation was approved.

The International Court spent almost a year in research and deliberations. On 8 June 1960 the Advisory Opinion was delivered. It was a victory for the Flags of Convenience nations. The Opinion read:

> Where Article 28(a) of the 1948 IMCO Convention (referring to the membership of the Maritime Safety Committee) refers to SHIPOWNING NATIONS, the reference is solely to registered tonnage.
>
> The Assembly of IMCO, in not electing Liberia and Panama to the Maritime Safety Committee on 15 January 1959, did NOT exercise its electoral power in a manner in accordance with Article 28(a) of the IMCO Convention of 1948.
>
> Therefore, it was NOT correct in 1959 to exclude Liberia and Panama from the group consisting of 'not less than eight' of 'the largest shipowning nations'.
>
> Neither the nationality of stockholders of shipping companies, nor the 'notion of a genuine link' between the ships and their country of registry is a relevant test for determining 'shipowning nations'.
>
> The underlying principle of Article 28(a) is that the largest shipowning nations shall be in predominance on the Safety Committee.

> A general opinion, shared by the Court, is that it is not possible to contend that the words 'shipowning nations' means that the ships have to be owned by the States itself.
>
> Either the words refer to tonnage beneficially owned by nationals of a State or to registered tonnage of a flag State regardless of private or State ownership.

Of the fourteen Judges, nine endorsed the above opinion. Three of the Judges dissented without submitting any opinion. Only two of the Judges submitted dissenting opinions. [Ref. 152]

With this decision, the flags of Panama, Liberia, and other nations offering convenient maritime codes was firmly established in international law.

D. EFFECTIVE CONTROL REAFFIRMED FOR THE AMERICAN OWNED TANKER FLEET

A boom in tanker freight experienced in 1956 and 1957 was followed by a huge slump in 1958, 1959 and 1960 [Ref. 153]. During the boom period, speculation on tanker ships by American investors was heavy. This was due in part to the availability, beginning in 1956, of U.S. Government Mortgage Insurance for up to 100 percent of the unpaid balance and interest on a Preferred Ship Mortgage provided the mortgage did not exceed 87.5 percent of the total cost of the vessel, under Title 11 of the Merchant Marine Act as amended in 1956 [Ref. 154].

> Another factor was the so-called 'Trade-out and Build' programme. Under this programme, the Maritime Administration permitted the transfer to foreign registry of old tonnage, in return for a commitment to build new, American tonnage. Because a vessel under one of the PanLibHon flags (which were the only flags to which the Maritime Administration approved transfers) commanded a substantially

> higher market value than an American-flag vessel, the 'right' to transfer a vessel to such foreign flag commanded a substantial premium. In the autumn of 1956, the peak period of the Suez Canal closing, such premium amounted to as high as $1 million for the right to transfer a T2 tanker. [Ref. 155]

The resulting speculation in the tanker industry caused a group of American tanker owners to petition in 1960 for legislation requiring that a large portion of oil imports be required to be transported in bottoms of U.S. registry. This was clearly in violation of Article XI of the General Agreement on Tariffs and Trade (GATT) which outlawed trade restrictions between contracting parties [Ref. 156].

The result of the consideration given this proposal was a strong affirmation of the system of foreign flag registry developed since World War II. The government of the United States maintained the position that U.S. defense needs were in fact satisfied through the effective control concept. It was also determined that restrictions on trade or excessive subsidization was not a viable alternative to Panamanian and Liberian registry.

E. THE ESTABLISHED SYSTEM

Since the early 1960s, neither the concept of effective control nor registration under flags of convenience has been significantly challenged. The Soviet Union, primarily to attack a system giving advantage to the United States, has spearheaded a movement aimed at phasing out flags of convenience at the United Nations Conference on Trade and

Development (UNCTAD). This effort, however, seems doomed to defeat. The open registry system is confirmed in international law and supported by too many nations besides the United States to be seriously challenged.

> Americans today control about 30% of open registry tonnage, followed by Hong Kong owners, who are British subjects, with 20%, Greek owners with 13%, Japanese owners with 11% and German owners with 3%. Other European nationalities, such as Norwegian and British, are joining the ranks of open registry owners in increasing numbers. Even the Peoples Republic of China has open registry tonnage under its control. [Ref. 157]

The advantages of open registry to the United States are numerous. A few examples bring this point to bear:

> In January 1981 the U.S. flag vessel PRESIDENT CLEVELAND was fixed to carry 20,000 tons of wheat from the Columbia River to Egypt at a rate of $139.82 per ton. During the same week the Liberian flag vessel FAUSTINA was fixed to transport 23,500 tons of wheat between the same ports at a rate of $52.75 per ton. The probable added cost for the U.S. vessel: $1,741,400.
>
> In July, 1981 the U.S. flag vessel BULK TRANSPORTER was fixed to carry 15,500 tons of wheat from the U.S. Gulf to Zaire at a rate of $147.75 a ton, while the Liberian flag vessel ORIENT HORIZON was fixed to carry 12,000 tons of wheat in the same trade at the rate of $58.50 a ton. The probable added cost for the U.S. flag vessel: $1,383,375.
>
> In February 1982 the U.S. flag vessel POTOMAC was fixed to carry 22,000 tons of wheat from the North Pacific to Egypt at a rate of $112.10 per ton. During the same week the Greek vessel COMMON VENTURE was fixed to carry 25,000 tons of wheat in the same trade for $30.01 a ton. The probable added cost for the U.S. flag vessel: $1,805,980. [Ref. 158]

Employment costs account for a significant portion of the higher cost of transportation aboard U.S. flag vessels.

> The total employment cost of a 32-man Italian crew is approximately $1.3 million per year. There are also a number of Spanish-manned vessels whose payroll cost is in the area

> of $1.05 million per year for a 32-man crew. In contrast, an equivalent American crew results in total payroll costs (including the wage increases effective June 15, 1981), of about $3 million per year. [Ref. 159]

The result of effective control is therefore not only a realistic means of meeting U.S. defense needs, but also a means of ensuring the availability of a commercially viable merchant marine to meet the economic needs of the country. Although there are certainly deficiencies that can be identified, such as the loss of access to jobs offering adequate wages by U.S. merchant seamen, the alternatives are even less attractive. Either the United States must accept the effective control concept, revise domestic maritime policy along the lines of the open registry systems, or build and subsidize an American flag fleet at considerable loss to the American taxpayer and consumer. Clearly, effective control is the best answer. Additionally, as will be explained in a subsequent chapter, it affords the United States certain benefits in both the economic and military sense that a purely U.S. flag merchant fleet could not. Effective control is well established in international law, is here to stay, and is of immense value to the United States.

IV. UNITED STATES OIL TRANSPORTATION CAPACITY

A. INTRODUCTION

Development of U.S. maritime policy, and the status of certain features of that policy in international law, is of particular importance with regard to the structure of the merchant marine. As was mentioned at the beginning of chapter II, that structure includes the following categories of shipping assets:

1. Shipping controlled directly by the Military Sealift Command (MSC) and operated entirely to support military operations.
2. Shipping of the United States national fleet, and as such under direct U.S. control and of U.S. registry.
3. Shipping of the "effective-control fleet" of the United States which is owned in whole or in part by U.S. citizens but, for a variety of reasons, has been registered under a foreign flag.

This chapter will discuss, in detail, each of the above types of assets. A quantitative assessment of the capacity of each to transport various types of petroleum products will also be made.

B. NATIONAL MARITIME CAPACITY

Today, the United States flag merchant marine carries only about five percent of the import and export tonnage of this country [Ref. 160]. The United States compares quite poorly with the United Kingdom, which carries 34 percent of

its foreign trade; West Germany 20 percent; Norway 30 percent; Japan 44 percent; and the Soviet Union 55 percent [Ref. 161]. Such a situation exists also at a time when the United States is dependent on foreign sources for between 50 and 100 percent of the supply of virtually all of the 70-odd raw materials listed by the Department of Defense as essential to the economy and for the military preparedness of the United States [Ref. 162].

The United States has also averaged importation of nearly eight million barrels of oil per day since 1977. Since 1980, however, this level has fallen dramatically to 5,874,000 in 1981. More than half of this critical resource is carried by vessels of the effective fleet [Ref. 163]. Where in 1970, Canada and Venezuela accounted for 70 percent of the U.S. crude oil imports, today those two countries supply only about 11.5 percent [Ref. 164]. By far the majority of oil today is supplied by the Arab OPEC states. Actual import of petroleum products will be provided for 1981 in a table later in this chapter. It is easy to see that, as areas of supply shift to Southwest Asia, transportation distances increase. With these increases in distance come significant increases in the vulnerability of U.S. ability to transport oil.

As Chief of Naval Operations, Admiral Thomas Hayward, stated in early 1982: "Without adequate and reliable sealift, literally none of our military plans are executable" at

a time when more than 90 percent of all wartime cargo will be transported by sea, no matter where the conflict takes place [Ref. 165].

> During the Korean War, an average of 400 dry cargo ships were employed to sustain the deployment, representing 17 percent of total U.S. assets. At that time, 2,400 dry cargo ships were available from the National Defense Reserve Fleet, U.S. Flag fleet and MSC controlled fleet.
>
> In Vietnam during the peak sealift year of 1968, the MSC controlled fleet averaged 420 ships, or 36 percent of U.S. total assets.
>
> If a similar contingency occurred today in Korea requiring a sealift comparable to the Korean or Vietnam conflict, about 350 dry cargo ships would be needed . . . and that would represent 75 percent of today's total available resources. In Korea in 1953 the U.S. had more than 2,400 dry cargo ships. Today we can count on only about 430. [Ref. 166]

The state of U.S. capacity to transport petroleum products is not nearly so grim, as will be shown in the analysis that follows. There are, however, some areas where lack of capacity could prove a problem in time of national crisis. This will be addressed in the next section on the Military Sealift Command.

C. STRUCTURE OF THE MILITARY SEALIFT COMMAND[14]

The Military Sealift Command is the backbone of the defense logistics capability of the United States. During

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[14]Material for this section was provided by Mr. Jim Milas of the Military Sealift Command, Washington, D.C., and Mr. John Minna and Mr. Cary Muerle of the Military Sealift Command, N.S.C. Oakland, California. All information in the section not otherwise documented was provided by them.

times of normal peacetime operation, the MSC "nucleus fleet" provides the bulk of services required by the uniformed military.

> With the exception of an undisclosed but probably small volume of cargo that is carried in regular Navy ships, all Defense Department cargoes that move by sea do so under arrangements made by the Military Sealift Command, the department's shipping agency. Although this command is a unit of the Navy, and is staffed in part by Navy personnel, its job is to furnish ocean transportation services to the entire Department of Defense and occasionally other government organizations. The command operates a fleet of government-owned vessels, all of which are commissioned vessels crewed by Navy officers and men. Most of this fleet is manned by civilian crews in the employment of the government. A smaller number of other government-owned ships that have been assigned to the Military Sealift Command are operated for it by private contractors on a cost-plus-fixed-fee basis. Together these ships compose the command's "nucleus fleet."
>
> The size of the nucleus fleet was limited in 1954 by an agreement between the secretaries of defense and commerce, the so-called Wilson-Weeks agreement. Except under conditions of full mobilization, the nucleus fleet must not contain more than fifty-six transports, thirty-four cargo ships, and sixty-one tankers.
>
> The same agreement sets forth the order in which the Defense Department may turn to other sources for shipping space. First it must make as much use as possible of U.S. liner service. If it needs more space, the department may charter U.S. flag vessels from private owners. If still more space is needed, the Maritime Administration may break out vessels from the National Defense Reserve Fleet and put them in service for the Defense Department. Only after these sources have been exhausted may the department engage space aboard foreign flag vessels. [Ref. 167]

To transport petroleum products, MSC currently maintains a 30 ship tanker fleet. This fleet transports approximately 6.5 million barrels of refined products per month to and from points all around the world. Although the entire MSC fleet is controlled from Washington, 18 of its vessels are operated

by private companies on long-term charters. The remaining 12 vessels are operated on short-term time charters (6 months - 10 years), and on spot charters. Table I indicates the bulk petroleum traffic moved by MSC from FY 1972 to FY 1980 (FY 1976T refers to the transition period to a 1 October fiscal year commencement date). The two main companies currently operating MSC vessels on a contract basis are Trinidad Corporation and Marine Transport Corporation (MATRA) lines. Total petroleum shipments from 1952 to 1980 are provided as broken down between government-owned and privately owned (charter) vessels in Table II. Dry cargo shipments are also provided in Table II.

Should MSC assets and assets chartered by the Military Sealift Command prove inadequate to meet demand, additional assets can be brought on line or made available. Figure 1 indicates the sequence in which this is accomplished.[15]

The National Defense Reserve Fleet (NDRF), as late as 1966, included over 400 freighters of reasonable vintage, 111 ships configured for special military usage, 70 tankers, 57 passenger ships, 74 ocean tugs and 924 ships of marginal utility [Ref. 168]. Today the mothballed NDRF has declined to 170 ships, of which 129 are remnants of the original

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[15]Figure 1 is reprinted from p. 7 of the Memorandum of Agreement Between the Department of Defense and the Department of Commerce on Procedures for Shipping Support of Military Operations.

TABLE I

BULK PETROLEUM TRAFFIC BY CARRIER

FY 1972 - FY 1980

CARRIER	FY 1972 BARRELS	FY 1973 BARRELS	FY 1974 BARRELS	FY 1975 BARRELS	FY 1976 BARRELS	FY 1976T BARRELS	FY 1977 BARRELS	FY 1978 BARRELS	FY 1979 BARRELS	FY 1980 BARRELS
PETROLEUM										
MSC SHIPS										
MSC OPERATED	6,659,396	3,910,567	4,872,226	3,775,204	3,474,507	797,842	2,861,271	3,111,559	3,750,343	3,944,144
MSC CONTRACT OPERATED	49,242,832	34,108,295	40,653,667	23,934,263	9,826,210	3,689,511	10,817,038	13,588,433	14,106,859	15,944,058
MSC BAREBOAT CGO TANKER			1,476,480	8,478,634	6,132,286					
MSC BAREBOAT COP TANKER				11,073,449	29,847,603	9,026,341	41,687,126	43,301,131	38,456,909	31,686,034
TOTAL MSC SHIPS	55,902,228	38,018,867	47,002,373	47,261,550	49,280,606	13,513,694	55,365,435	60,001,123	56,314,111	51,574,236
COMMERCIAL SHIPS										
TIME CHARTER	15,852,475	20,553,395	12,968,668	15,342,749	11,878,060	2,656,305	5,183,976	3,685,864	4,460,995	12,332,771
LONGTERM CONSECUTIVE-VOYAGE CHARTER	65,514,214	59,483,993	41,451,751	23,882,529	19,769,791	5,595,608	16,406,590	13,357,742	10,114,753	7,389,086
VOYAGE CHARTER	11,879,650	13,152,931	13,584,594	1,357,562	1,798,554	131,891	2,202,686	62,736,762	45,180,813	20,495,615
SHIPPING CONTRACT	7,210,590	6,553,884	4,563,863	3,664,651	3,468,885	732,760	2,924,489	2,839,532	3,071,967	3,093,165
TOTAL COMMERCIAL SHIPS	100,456,929	99,744,203	72,568,876	44,247,491	36,915,290	9,116,564	26,717,741	82,619,900	62,628,528	43,310,637
TOTAL PETROLEUM LIFT	156,359,157	137,763,065	119,571,249	91,509,041	86,195,896	22,630,258	82,083,176	142,621,023	119,142,639	94,884,873

TABLE II

SHIPMENTS OF DRY CARGO AND PETROLEUM BY MILITARY SEALIFT COMMAND, FISCAL YEARS 1952-1980

Fiscal year	Dry cargo shipments					Petroleum shipments				
	Aboard government-owned vessels		Aboard privately owned vessels		Total aboard all vessels, millions of measurement ton-miles	Aboard government-owned vessels		Aboard privately owned vessels		Total aboard all vessels, millions of long ton-miles
	Millions of measurement ton-miles	Percentage of total	Millions of measurement ton-miles	Percentage of total		Millions of long ton-miles	Percentage of total	Millions of long ton-miles	Percentage pf total	
1952	13,480	13.7	85,156	86.3	98,636	34,202	63.4	19,767	36.6	53,969
1953	43,200	39.3	66,709	60.7	109,909	32,655	47.1	36,633	52.9	69,288
1954	27,972	33.5	55,585	66.5	83,557	32,919	55.3	26,574	44.7	59,493
1955	19,111	34.5	36,246	65.5	55,357	21,205	43.7	27,348	56.3	48,553
1956	19,206	35.4	35,026	64.6	54,232	20,971	47.5	23,199	52.5	44,170
1957	16,082	30.9	35,970	69.1	52,052	42,706	74.9	14,315	25.1	57,021
1958	14,376	29.4	34,556	70.6	48,932	25,576	53.3	22,384	46.7	47,960
1959	12,036	24.7	36,629	75.3	48,665	20,701	39.2	32,140	60.8	52,841
1960	11,621	26.9	31,554	73.1	43,175	13,834	32.1	29,309	67.8	43,143
1961	12,057	28.6	30,072	71.4	42,129	14,178	27.9	36,680	72.1	50,858
1962	11,641	22.7	39,559	77.3	51,200	13,883	25.1	41,461	74.9	55,344
1963	10,489	20.4	41,009	79.6	51,498	14,014	24.7	42,616	75.3	56,630
1964	11,465	20.4	44,685	79.6	56,150	13,521	23.7	43,540	76.3	57,061
1965	11,087	19.5	45,716	80.5	56,803	14,525	24.5	44,774	75.5	59,298
1966	25,788	24.1	81,049	75.9	106,837	13,508	17.6	63,200	82.4	76,708
1967	45,613	30.9	101,934	69.1	147,547	13,381	13.3	87,184	86.7	100,565
1968	46,124	28.9	113,499	71.7	159,623	13,658	11.2	108,623	88.8	122,281
1969	39,257	24.4	121,889	75.6	161,146	13,196	12.4	93,064	87.6	105,260
1970	15,493	12.0	114,036	88.0	129,529	12,796	17.3	61,073	82.7	73,869
1971	7,220	7.4	89,899	92.6	97,119	12,083	19.6	49,504	80.4	61,587
1972	7,045	8.3	77,405	91.7	84,451	11,363	18.3	50,557	81.7	61,920
1973	33,129	50.8	31,943	49.2	65,072	7,012	13.7	44,272	86.3	51,284
1974	19,669	43.3	25,765	56.7	45,435	8,718	18.8	37,759	81.2	46,477
1975	15,352	36.9	26,249	63.1	41,601	13,621	39.3	21,019	60.7	34,640
1976	10,841	33.4	21,548	66.6	32,389	14,475	57.4	10,745	42.6	25,219
1977T	3,116	35.9	5,557	64.1	8,673	4,532	68.1	2,084	31.4	6,616
1977	10,362	33.9	20,236	66.1	30,599	15,589	70.2	6,626	29.8	22,215
1978	9,694	31.9	20,881	68.1	30,575	13,652	33.0	27,680	67.0	41,331
1979	11,545	35.4	21,101	64.6	32,646	13,047	46.2	15,170	53.8	28,217
1980	10,469	34.2	20,152	65.8	30,621	14,414	48.1	15,563	51.9	29,978

Source: U.S. Navy, Military Sealift Command, Financial and Statistical Report

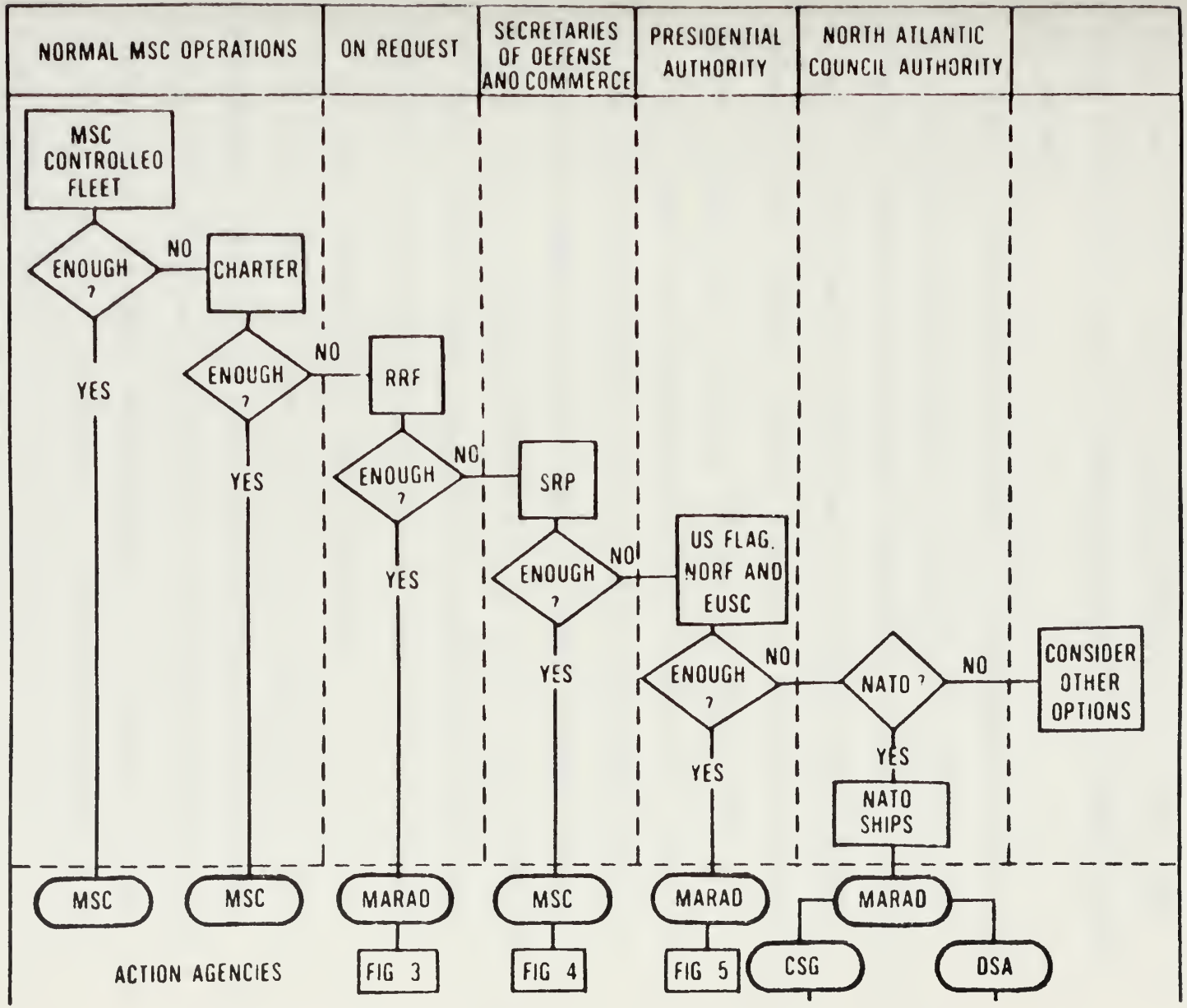


Figure 1. Normal Sequence of Resource Utilization

Victory Ship fleet built during World War II and now averaging over 40 years of age [Ref. 169]. The availability of tanker ships to carry refined petroleum products is similarly grim [Ref. 170]. On the average, from one to three NDRF ships are brought out of mothballs yearly to augment other MSC assets.

Should NDRF assets fall short of requirements, the Sealift Readiness Program may be activated to acquire civil shipping support for military operations. Under the program, a Tanker Requirements Committee is convened and shipping industry participants provide assets as allocated among themselves through the Voluntary Tanker Agreement [Ref. 171].

Only when the procedures outlined above still fall short of military requirements can U.S. flag and effective U.S. controlled (EUSC) ships be requisitioned through Section 902(a) of the Merchant Marine Act of 1936. Since World War II, this has not been necessary as assets have been made available by shipowners without the need for a declaration of national emergency by the President.

If all other sources combined are inadequate to meet requirements, the use of NATO ships remains as an option. Currently NATO European allies have earmarked some 600 vessels specifically for NATO reinforcement. Of these, at least 400 could be counted on to assist in the reinforcement of U.S. troops [Ref. 172].

The majority of the tanker fleet today is not acceptable for the transportation of jet fuel and other refined products. These products required linings in tanker hulls, and therefore rapid conversion of crude carriers to military purposes in a crisis would be impossible. It is estimated that this type of conversion would take 30-90 days. Of the American owned foreign fleet (450 ships), between 80 and 120 are coated and should be immediately available as product and/or Bunker C (fuel for gas turbine ships) carriers.[16] Additionally, tankers of over 40,000 tons are not satisfactory for military contingency use as a petroleum product carrier, because of unacceptable target size and port facility restrictions (e.g. water depth, pier length, etc.).

From World War II to the 1973 Yom Kippur War, more tanker ships were available for military use than required by the Joint Chiefs of Staff.[17] Currently, however, U.S. assets are clearly inadequate to meet refined product military requirements in a total-war situation. U.S. flag and effective U.S. control ships, although of great value to the military, are primarily of utility to the nation for their value in the continuing economic reliance on oil. With that in mind, a quantitative analysis of the U.S. flag and effective U.S. controlled tankship fleets will follow.

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[16]Insight provided by Mr. Eugene Yourch, Executive Secretary, Federation of American Controlled Shipping.

[17]Ibid.

D. U.S. FLAG AND EFFECTIVE U.S. CONTROLLED TANKSHIP ASSETS

1. Scope of the Analysis

The analysis that follows is intended to provide insight into the adequacy of U.S. tankship assets to meet the economic requirements of the nation through transportation of oil imports. Information on oil imports for 1981 and historical data on oil imports and consumption are provided, while projections of import trends are included as a basis for measure of shipping adequacy.

The analysis of tankship assets will use regression modeling to arrive at predictors for expected levels of tankship availability under the U.S. flag and individual effective U.S. control flags at five year intervals from 1985 to 2000. In general, the reliability of the coefficients was quite good. In all cases data utilized are the most current available (usually through end-year 1980).

For carrying capacity predictions a worst case (Persian Gulf) situation was chosen to demonstrate capacity in relation to an inflexible situation. Shorter and less vulnerable transportation routes would obviously increase total capacity, but are of less heuristic value in perceiving the limitations placed on U.S. assets.

2. The Model

Multiple linear regression modeling was used to analyze the trends in world tankship availability and U.S. oil consumption and import. Computer modeling was conducted

using the Statistical Analysis System (SAS), Interactive Data Analysis (IDA) and Advanced Program Language (APL) software packages. In the first case, the independent variable was YEAR and the dependent variable was DEADWEIGHT TONNAGE. In the second case, the independent variable was YEAR and the dependent variable was BARRELS PER DAY. Single linear regressions were conducted on the U.S. flag fleet and individual countries of the effective U.S. control fleet to predict capacity (1985 to 2000). The simple linear regression model was used with the Texas Instrument TI-59 calculator. This model was used in conjunction with Introductory Statistics, THIRD EDITION by Wonnacott and Wonnacott, and the associated supplement by Prof. Peter Zehna of the Naval Postgraduate School. Again, the independent variable was YEAR and the dependent variable was DEADWEIGHT TONNAGE. A classical two-sided t-test using the simple linear regression model was conducted (D.F. = 7; t/2 = 2.365 for 95% C.I.) for a H_0: B = 0 in each case. To test the hypothesis that there was no simple linear regression of Y on X, that is, H_0: $B_1 = 0$ against H_1: $B_1 \neq 0$, the F ratio was used from the analysis of variance tables given by

$$F_0 = \frac{MS_D}{MS_R} \equiv \frac{MS_B}{S^2}$$

The P value was the area to the right of F_0 under the F frequency curve. H_0 was rejected if P was less than the

significant level of L (.05). Thus, the hypothesis that $\beta = 0$ was rejected as well. When $\beta \neq 0$, it qualified as an estimator for X. For purposes of the analysis, X (dependent variable) = DWT.

The tests which were conducted measured the relationship of deadweight tonnage to years. The R^2 values in all the models explains how much of that relationship is accounted for in the respective model. As noted, an R^2 value approaching 1.00 is almost indicative of a perfect correlation between year and DWT. Thus, years are a good way of predicting DWT growth (the model is very nearly linear).

The F statistic in all cases was extremely high indicating that the means of the parameters being compared were not close to equality. In the case of the independent and dependent variables under consideration this is not a surprising result. It could have been transformation (such as a logarithmic transformation) to scale the data. In that no useful insight would be attained by doing this, it was not done in this case.

An underlying assumption in all models was the existence of normality in the distribution of the data set, e.g. deadweight tonnage, barrels per day, etc.

3. The World Tankship Fleet

Table III provides historical data on the world tankship fleet.[18] Table IV provides a statistical analysis (SAS) of the data. A dummy variable was incorporated after initial computer runs in an attempt to eliminate a noted cyclical error. This dummy variable was introduced to account for the closing of the Suez Canal in 1967, the low T value associated with its coefficient (0.85) makes it a poor predictor of that variable.

Figure 2 provides a plot of DWT versus year. Graphing technique is based on Interactive Data Analysis by Donald R. McNeil [Ref. 173].

From the data, Y values (DWT) are predicted from 1985 to 2000 at five year intervals using IDA (Table V). Bounding intervals at the 95% confidence level are also provided. As a check on the model, a post-facto prediction for 1965 was also provided.

4. U.S. Flag and Effective U.S. Control Tankship Assets

A tonnage analysis of United States flag and effective U.S. control tankship assets is provided in Table VI. Single linear regressions were conducted on the data using the TI-59 calculator as follows:

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[18] Data provided for analysis in this section is from Analysis of World Tank Ship Fleet, provided by the Sun Oil Company, Inc., for end years 1967, 1970, 1973, 1976, 1979 and 1980 (unpublished manuscript).

TABLE III

WORLD TANKSHIP FLEET 1957-1980

S T A T I S T I C A L A N A L Y S I S S Y S T E M

OBS	YEAR	NUMBER	DWT	DUMVAR	TEQUIV
1	1957	2954	50424800	0	2988
2	1958	3146	56640700	0	3403
3	1959	3276	62657800	0	3826
4	1960	3264	65780400	0	4076
5	1961	3250	68859400	0	4305
6	1962	3259	71995700	0	4543
7	1963	3279	76179500	0	4841
8	1964	3359	85125700	0	5455
9	1965	3436	93171900	0	5984
10	1966	3524	102908800	0	6641
11	1967	3613	112366200	1	7275
12	1968	3775	128128000	1	8312
13	1969	3893	146029000	1	9461
14	1970	4002	167940000	1	10925
15	1971	4207	193891000	1	12577
16	1972	4342	221204000	1	14341
17	1973	4572	256822000	1	16634
18	1974	4892	302276800	1	19543
19	1975	5112	348586400	1	22548
20	1976	5145	382926000	1	24763
21	1977	5103	398381200	1	.
22	1978	4731	386123300	1	.
23	1979	4808	390591000	1	25281
24	1980	4783	387780400	1	.

TABLE IV

STATISTICAL ANALYSIS OF WORLD TANKSHIP FLEET

S T A T I S T I C A L A N A L Y S I S S Y S T E M 14:45 FRIDAY, JUNE 4, 1982

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: DWT

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	4	2539096808974825l0	634774202243706l8	99999.99	0.0000	0.999996	0.1572
ERROR	16	1026767755603	64172984725		STD DEV		DWT MEAN
CORRECTED TOTAL	20	2539107076652381l0			253324	161166909.523809l2	

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
YEAR	1	222154653242776160	99999.99	0.0000	1	176250447247775	274.65	0.0000
NUMBER	1	20562054534129206	99999.99	0.0000	1	3191864204442	4.97	0.0409
DUMVAR	1	22457909481178786	34995.89	0.0001	1	466075731103	0.73	0.4067
TEQUIV	1	83471821723983B3	99999.99	0.0000	1	83471821723983B2	99999.99	0.0000

PARAMETER	ESTIMATE	T FOR H0: PARAMETER=0	PR > ITI	STD ERROR OF ESTIMATE
INTERCEPT	1097773422.5065231	16.69	0.0001	65790799.31763926
YEAR	-557706.3974035	-16.57	0.0001	33652.44025238
NUMBER	-1087.8391392	-2.23	0.0404	487.77503629
DUMVAR	206654.5074073	0.85	0.4067	242489.39896468
TEQUIV	15871.5028211	360.66	0.0001	44.00724937

MULTIPLE REGRESSION

MODEL: MODEL01
DEP VAR: DWT

SSE	1.02677E+12	F RATIO	989161.10
DFE	16	PROB>F	0.0001
MSE	64172984724	R-SQUARE	1.0000

DURBIN-WATSON D STATISTIC = 1.7350
FIRST ORDER AUTOCORRELATION = 0.0151
BECAUSE OF MISSING VALUES, ONLY 19 TERMS ADDED FOR D-W

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T RATIO	PROB>ITI
INTERCEPT	1	1097770423	65790799	16.6858	0.0001
YEAR	1	-557706	33652.44	-16.5725	0.0001
NUMBER	1	-1087.84	487.775636	-2.2302	0.0404
DUMVAR	1	206654.5	242489.4	0.8522	0.4067
TEQUIV	1	15871.5	44.007249	360.6566	0.0001

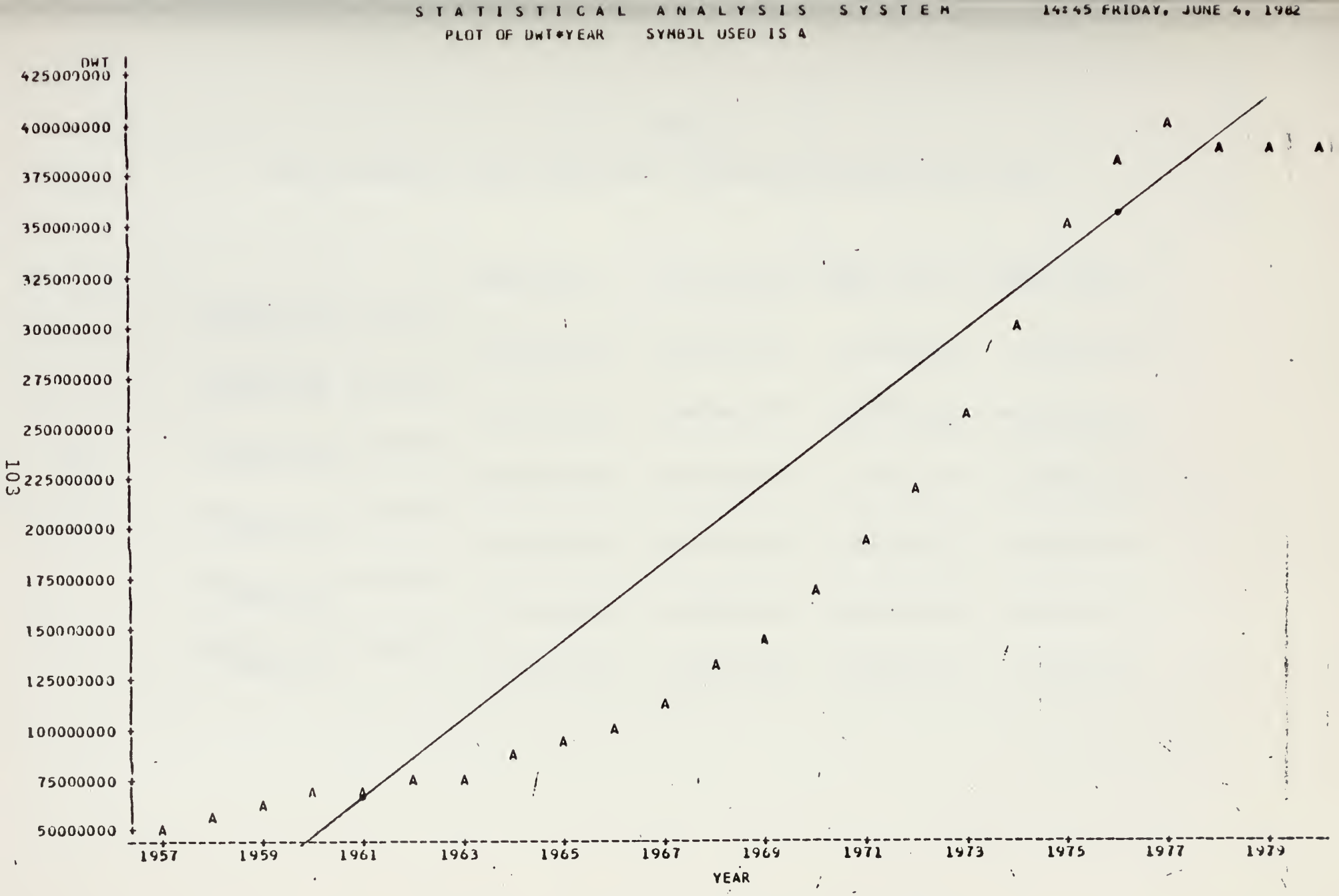


Figure 2. Plot of World Tankship Fleet
(Deadweight Tonnage vs Year)

TABLE V

WORLD TANKSHIP FLEET PREDICTED DEADWEIGHT TONNAGE 1985-2000

	PREDICTED Y	STD.ERROR	95.0 % P.I. LOWER LIMIT	95.0 % P.I. UPPER LIMIT
INDEP. VAR. VALUE(S) 1985.000	4.8003E+08	2.9670E+07	4.1848E+08	5.4157E+08
INDEP. VAR. VALUE(S) 1990.000	5.6796E+08	3.4004E+07	4.9742E+08	6.3849E+08
INDEP. VAR. VALUE(S) 1985.000	4.8003E+08	2.9670E+07	4.1848E+08	5.4157E+08
INDEP. VAR. VALUE(S) 1995.000	6.5588E+08	3.8792E+07	5.7542E+08	7.3635E+08
INDEP. VAR. VALUE(S) 2000.000	7.4381E+08	4.3885E+07	6.5277E+08	8.3484E+08
INDEP. VAR. VALUE(S) 1965.000	1.2832E+08	2.2431E+07	8.1785E+07	1.7485E+08

UNITED STATES

(DWT vs YEAR)

$\hat{Y} = 1960 + 1.2734 \times 10^{-6}$

$r = .90$

d.f. = n - 2 = 3 (DEGREES OF FREEDOM FOR ALL CALCULATIONS IN THIS SECTION)

$t\alpha/2$ - 3.185 for 95% C.I.

$\beta\ell = 1.427 \times 10^{-7}$

$u = 2.4042 \times 10^{-6}$

$\therefore$ REJECT H_0: B = 0

PREDICTED TONNAGE:

1985	19,627,623
1990	23,553,654
1995	27,480,046
2000	31,406,438

LIBERIA

$\hat{Y} = 1967 + (2.34 \times 10^{-7})X$

$r = .97$

$\beta\ell = 1.511 \times 10^{-7}$

$u = 3.933 \times 10^{-7}$

$\therefore$ REJECT H_0

PREDICTED TONNAGE:

1985	74,905,492
1990	96,275,862
1995	117,646,233
2000	139,016,603

PANAMA

$\hat{Y} = 1058 + (3.3496 \times 10^{-6})X$

$r = .94$

$\beta_1 = 1.0348 \times 10^{-6}$

$u = 5.6644 \times 10^{-6}$

$\therefore$ REJECT H_0

PREDICTED TONNAGE:

1985	7,920,793
1990	9,413,515
1995	10,906,237
2000	12,398,954

UNITED KINGDOM[19]

$\hat{Y} = 1967 + (1.0402 \times 10^{-6})X$

$r = .59$

$\beta_1 = -1.5361 \times 10^{-6}$

$u = 3.6164 \times 10^{-6}$

H_0: B = 0 is ACCEPTED and therefore B is not a good predictor. This may be the case because of the opening of the North Sea pipelines in 1980, which could be expected to decrease British reliance on tankers to ship oil resources.

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[19]Although data for United Kingdom and other countries is provided, these assets do not fall under effective U.S. control.

PREDICTED TONNAGE:

1985	12,335,416
1990	21,949,359
1995	26,756,330
2000	31,526,301

ALL OTHER COUNTRIES

$\hat{Y} = 1163 + (1.549 \times 10^{-6}_X$

$r = .99$

$\beta\ell = 9.973 \times 10^{-7}$

$u = 1.8036 \times 10^{-6}$

$\therefore$ REJECT H_0

PREDICTED TONNAGE:

1985	14,252,700
1990	17,480,672
1995	20,708,644
2000	23,936,616

TOTAL U.S. ASSETS ALL COUNTRIES

$\hat{Y} = 1963 + (1.813 \times 10^{-7})X$

$r = .98$

$\beta\ell = 1.205 \times 10^{-7}$

$u = 2.42 \times 10^{-7}$

$\therefore$ REJECT H_0

PREDICTED TONNAGE:

1985	119,726,028
1990	147,312,069
1995	174,898,110
2000	202,484,151

5. U.S. Petroleum Transportation Capacity

To truly understand the magnitude of the capability of U.S. assets to transport crude oil, a conversion from deadweight tonnage to barrels per day capacity is necessary. To accomplish this, a worst case scenario was chosen where distances involved would be maximized, taxing capacity to the limit. This would involve a round trip with individual legs as follows:

NEW YORK - CAPE OF GOOD HOPE:	6,801NM
CAPE OF GOOD HOPE - AL BASRAH (MOUTH PERSIAN GULF BETWEEN IRAQ AND IRAN):	5,211NM
NEW YORK - AL BASRAH:	12,012NM [Ref. 174]

Thus round trip distance for this scenario is 24,024 NM.

The equations used to convert DWT to barrels per day are as follows:

(1) $\frac{2 \times \text{DISTANCE}}{24 \times \text{SPEED}} + 4$ (AVERAGE MAX. ROUND TRIP PORT TIME = R

R = ROUND TRIP TIME IN DAYS

(2) $\frac{365 \text{ DAYS/YR}}{\text{R DAYS/ROUND TRIP}} = N$

N = NUMBER OF ROUND TRIPS PER YEAR

(3) N (ROUND TRIPS PER YEAR) x C (CAPACITY IN D.W.T.) = TC (TRANSPORT CAPACITY)

(4) $\frac{TC}{365}$ = DTC

DTC = DAILY TRANSPORT CAPACITY

(5) DTC x 7.46 BARRELS/D.W.T. = BARRELS/DAY

Applying the above calculations to the data provided in Table VI, U.S. petroleum transport capacity by flag of registry is indicated in Table VII.

Again utilizing the linear regression program with the TI-59 calculator, the following results were obtained:

U.S. FLAG CAPACITY

MAXIMUM CAPACITY

$Y = 1960 + (1.09901 \times 10^{-5})X$

$r = .93$

$= 2.8457 \times 10^{-6}$

$u = 1.91344 \times 10^{-5}$

$\therefore$ REJECT H_0

MAXIMUM BARRELS/DAY

1985	2,238,732.32
1990	2,693,738.98
1995	3,184,713.38
2000	3,639,637.31

AVERAGE CAPACITY

$Y = 1.60 + (1.34914 \times 10^{-5})X$

$r = .90$

$= 1.829 \times 10^{-6}$

$u = 2.51539 \times 10^{-6}$

$\therefore$ REJECT H_0

TABLE VI

ANALYSIS OF UNITED STATES OWNED TANK SHIP FLEET
(OCEAN-GOING VESSELS 2,000 GROSS TONS AND OVER)

	UNITED STATES			LIBERIA			PANAMA		
YEAR	NO.	DWT	T-2EQ.	NO.	DWT	T-2EQ.	NO.	DWT	T-2EQ.
1968	378	8,361,600	553.5	235	10,051,300	662.2	87	2,806,000	186.10
1971	350	8,911,000	593.40	287	16,805,900	1,097.60	113	4,480,800	298.40
1974	312	9,525,200	640.30	361	27,808,300	1,799.80	99	4,073,700	269.50
1977	290	11,565,138	779.30	408	46,558,611	3,017.51	90	5,708,189	371.06
2980	314	16,583,068	1,115.05	339	47,229,277	3,059.30	70	6,115,338	395.24

	UNITED KINGDOM			ALL OTHER COUNTRIES			TOTAL		
YEAR	NO.	DWT	T-2EQ.	NO.	DWT	T-2EQ.	NO.	DWT	T-2EQ.
1968	65	2,495,100	168.6	109	3,467,200	231.2	874	27,181,300	1,801.70
1971	73	6,157,900	430.5	121	5,338,100	351.80	944	41,702,700	2,771.7
1974	84	8,858,700	581.30	122	6,516,600	431.30	978	56,782,600	3,722.40
1977	80	9,262,786	603.46	117	9,687,044	630.08	985	82,781,768	5,401.41
1980	55	6,060,771	392.92	117	10,746,868	695.91	896	86,735,322	5,659.92

TABLE VII

U.S. PETROLEUM TRANSPORTATION CAPACITY

(INCLUDING U.S. FLAG AND EFFECTIVE-CONTROL FLEET)

YEAR	MAX. DAILY TRANSPORT CAPACITY	AVERAGE DTC	MAX. BARRELS/DAY	AVERAGE BARRELS/DAY
UNITED STATES				
1968	117,291.48	105,149.98	874,994.44	784,418.85
1971	135,496.03	111,570.60	1,010,800.38	832,316.68
1974	145,618.13	120,304.58	1,086,311.25	897,472.17
1977	177,754.59	147,019.84	1,326,049.24	1,096,768.00
1980	253,516.49	209,446.42	1,891,233.02	1,562,470.30
LIBERIA				
1968	150,081.05	123,094.00	1,119,604.70	918,281.26
1971	250,937.41	205,314.72	1,871,993.10	1,535,377.80
1974	412,934.21	338,270.83	3,080,489.20	2,523,500.40
1977	687,536.75	672,530.07	5,129,024.10	4,196,474.30
1980	697,440.56	570,633.18	5,202,906.5	4,256,923.5
PANAMA				
1968	42,128.44	34,671.40	314,278.15	258,648.64
1971	67,273.38	55,365.50	501,859.42	413,026.64
1974	60,491.66	49,554.05	451,267.74	369,673.21
1977	84,293.53	68,967.43	628,829.74	514,497.06
1980	89,635.78	73,216.51	668,682.89	546,195.18
TOTAL				
1968	309,500.97	262,915.38	2,308,877.30	1,961,348.80
1971	453,706.82	372,750.82	3,384,652.90	2,780,721.10
1974	619,044.00	508,129.46	4,618,068.20	3,790,645.80
1977	949,584.87	778,517.34	7,083,903.10	5,807,739.40
1980	1,040,592.80	853,296.11	7,762,822.50	6,365,589.00

AVERAGE BARRELS/DAY

1985	1,850,022.55
1990	2,220,628.62
1995	2,591,234.69
2000	2,961,840.76

LIBERIAN REGISTRY CAPACITY

MAXIMUM CAPACITY

$\hat{Y} = 1966 + (2.4823 \times 10^{-6})X$

$r = .97$

$\beta\ell = 1.3863 \times 10^{-6}$

$u = 3.5767 \times 10^{-6}$

$\therefore$ REJECT H_0

MAXIMUM BARRELS/DAY

1985	7,712,159.47
1990	9,726,412.18
1995	11,740,664.89
2000	13,754,917.59

AVERAGE CAPACITY

$\hat{Y} = 1966 + (3.037 \times 10^{-6})X$

$r = .97$

$\beta\ell = 1.6958 \times 10^{-6}$

$u = 4.3783 \times 10^{-6}$

$\therefore$ REJECT H_0

AVERAGE BARRELS/DAY

1985	6,308,063.46
1990	7,954,405.29
1995	9,600,747.11
2000	11,247,088.93

PANAMANIAN REGISTRY CAPACITY

MAXIMUM CAPACITY

$\hat{Y} = 1958 + (3.09246 \times 10^{-5})X$

$r = .93$

$\beta\ell = 8.149 \times 10^{-6}$

$u = 5.37004 \times 10^{-5}$

$\therefore$ REJECT H_0

MAXIMUM BARRELS/DAY

1985	868,687.14
1990	1,030,370.57
1995	1,192,054.00
2000	1,353,737.43

AVERAGE CAPACITY

$\hat{Y} = 1958 + (3.79609 \times 10^{-5})X$

$r = .93$

$\beta\ell = 9.3631 \times 10^{-6}$

$u = 6.65587 \times 10^{-5}$

$\therefore$ REJECT H_0

AVERAGE BARRELS/DAY

1985	710,175.81
1990	841,890.20
1995	973,604.59
2000	1,105,318.98

Total U.S. petroleum transport capacity projections are as follows:

TOTAL U.S. TRANSPORT CAPACITY

MAXIMUM

$\hat{Y} = 1964 + (2 \times 10^{-6})X$

$r = .98$

$\beta\ell = 1.3644 \times 10^{-6}$

$u = 2.6251 \times 10^{-6}$

$\therefore$ REJECT H_0

1985	10,546,092.26
1990	13,000,000.
1995	15,500,000.
2000	18,000,000.

AVERAGE

$\hat{Y} = 1964 + (2.4571 \times 10^{-6})X$

$r = .98$

$\beta\ell = 1.6541 \times 10^{-6}$

$u = 3.2599 \times 10^{-6}$

$\therefore$ REJECT H_0

1985	8,618,103.0
1990	10,653,054.9
1995	12,588,006.8
2000	14,722,958.7

Thus, projections indicate that, in a worst case scenario, total U.S. petroleum transport capacity is impressive. This capacity would, of course, be increased if other routes were used:

ALBASRAH - PORT SAID - STR OF GIBRALTAR - NEW YORK: 8,500NM
ALBASRAH - SINGAPORT - SAN FRANCISCO: 11,261 NM [Ref. 175]

It would be increased even more if oil sources were diversified, which, of course, they are.

The worst case scenario chosen for the analysis makes several potentially controversial assumptions. First, it assumes total availability of shipping on a continuous basis. Second, it assumes total availability of port facilities to on and offload. Lack of deepwater ports would prove to be a significant limiting factor in that few U.S. ports can accommodate Very Large Crude Carriers (VLCCs) or Ultra Large Crude Carriers (ULCCs). This, however, is beyond the scope of this analysis. Another assumption is total accessibility to oil in whatever quantity is desired. This too could prove to be a distinctly erroneous assumption.

The model does demonstrate, however, a valid measure of carrying capacity against which exogenous variables can be

applied to produce a more reliable indicator. The model, however, has little value without some idea of U.S. oil import requirements over time.

6. United States Oil Consumption Patterns

Oil consumption patterns in the United States, in terms of imports and total consumption, are as indicated in Table VIII. Table IX provides a statistical analysis of the data using the SAS computer program. As indicated by the Burbin-Watson statistic (0.6428), a Type I serial correlation (cyclic) exists. This was confirmed by examination of a plot of the residuals (not included). Additionally, the T statistic for YEAR is low, thus indicating unreliability of the coefficient of that variable for predictive purposes.

A plot of oil imports by year is provided for convenience in Figure 3.

Again using the TI-59 calculator for a single linear regression of DWT on year, the following projections were obtained:

U.S. OIL IMPORTS VS. YEAR

$\hat{Y} = 1958 + (2.9335 \times 10^{-6})X$

$r = .91$

PREDICTED IMPORT RATE (BARRELS/DAY)

1985	9,260,957
1990	10,965,425
1995	12,669,893
2000	14,374,362

TABLE VIII

U.S. OIL IMPORTS 1960-1981 (42 Gal. Barrels/Day)

YEAR	IMPORTS	TOTAL CONSUMPTION	IMPORT % OF TOTAL CONSUMPTION
1960	1,820,000	9,660,000	18.84
1961	1,920,000	9,810,000	19.57
1962	2,080,000	10,230,000	20.33
1963	2,120,000	10,550,000	20.09
1964	2,260,000	10,820,000	20.89
1965	2,470,000	11,300,000	21.86
1966	2,570,000	11,850,000	21.69
1967	2,540,000	12,280,000	20.68
1968	2,810,000	13,080,000	21.48
1969	3,170,000	13,810,000	22.95
1970	3,420,000	14,370,000	23.80
1971	3,930,000	14,845,000	26.47
1972	4,740,000	15,990,000	29.64
1973	6,255,000	16,870,000	37.08
1974	6,125,000	16,150,000	37.93
1975	6,025,000	15,875,000	37.95
1976	7,290,000	16,980,000	42.93
1977	8,710,000	17,925,000	48.59
1978	8,225,000	18,225,000	45.13
1979	8,410,000	17,910,000	46.96
1980	6,735,000	16,930,000	39.78
1981	5,874,000		

SOURCE: BRITISH PETROLEUM STATISTICAL REVIEW OF THE WORLD OIL INDUSTRY, 1970 and 1980.

TABLE IX

STATISTICAL ANALYSIS OF U.S. OIL IMPORTS

S T A T I S T I C A L A N A L Y S I S S Y S T E M 17:53 FRIDAY, JUNE 4, 1982

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: IMPORT

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	3	1157054289566 33.460	385684763188 77.820	3121.65	0.0001	0.998186	2.4932
ERROR	17	210037710033.223	12355159413.719		STD DEV		IMPORT MEAN
CORRECTED TOTAL	20	1159154666666666.680			111153.765		4458333.33333333

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE IV SS	F VALUE	PR > F
YEAR	1	1023493377922 19.900	8287.51	0.0001	1	14833906732.670	1.20	0.2890
TOTUSE	1	225750225199 6.755	182.72	0.0001	1	280684340849.574	22.72	0.0002
PERTOT	1	110543889124 17.806	894.72	0.0001	1	110543889124 17.806	894.72	0.0001

PARAMETER	ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT	37264482.13988528	1.00	0.3290	37079225.27217466
YEAR	-20891.54596069	-1.09	0.2890	19087.56735035
TOTUSE	0.19204525	4.77	0.0002	0.04029199
PERTOT	189889.22132125	29.91	0.0001	6348.29529982

MULTIPLE REGRESSION

MODEL: MODEL01
DEP VAR: IMPORT

SSE	210037710035	F RATIO	3121.65
DFE	17	PROB>F	0.0001
MSE	12355159414	R-SQUARE	0.9982

DURBIN-WATSON D STATISTIC = 0.6428
FIRST ORDER AUTOCORRELATION = 0.6646

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T RATIO	PROB>|T|
INTERCEPT	1	37264482	37079225	1.0050	0.3290
YEAR	1	-20891.5	19087.57	-1.0945	0.2890
TOTUSE	1	0.192045	0.040292	4.7663	0.0002
PERTOT	1	189889.2	6348.295	29.9118	0.0001

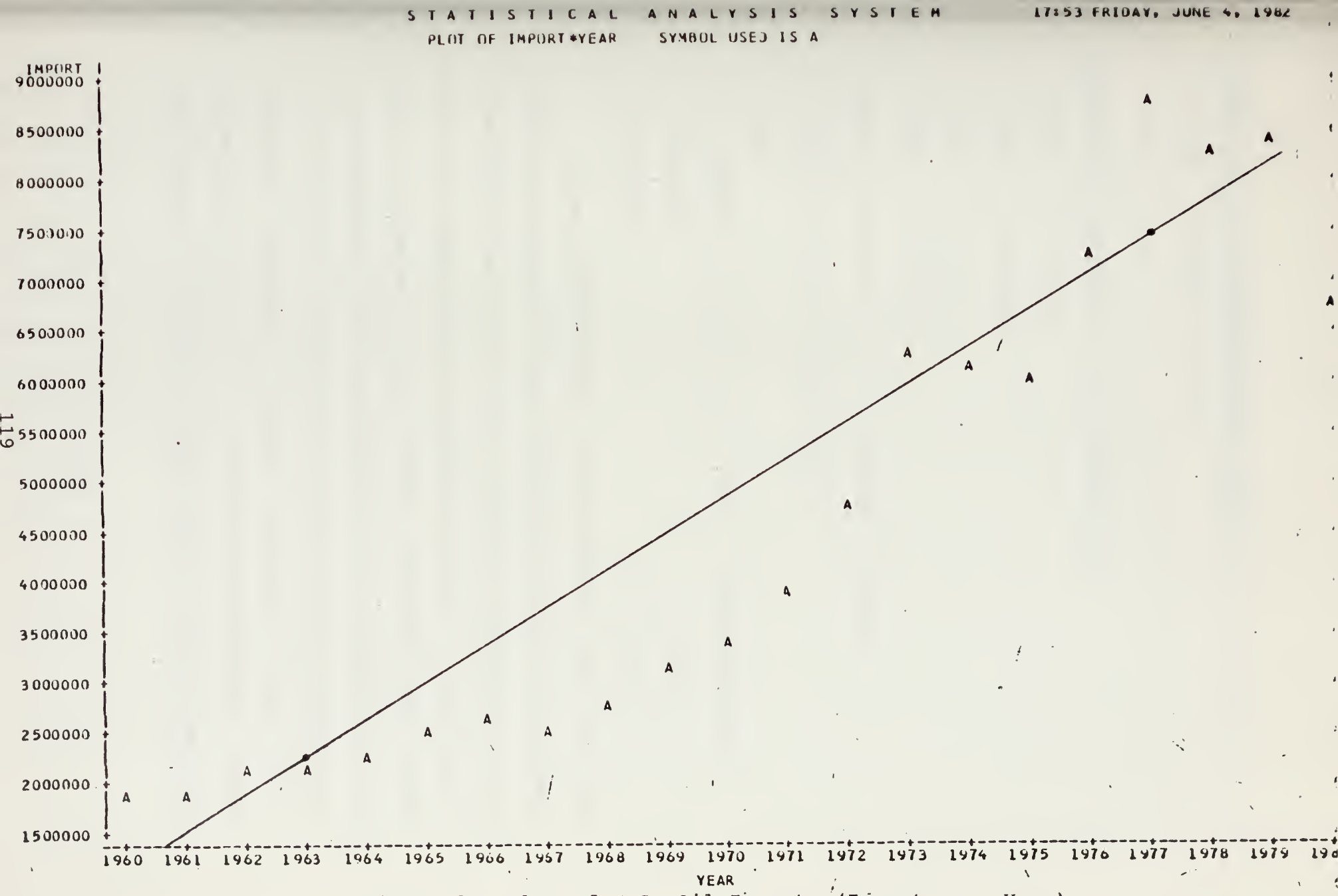


Figure 3. Plot of U.S. Oil Imports (Imports vs. Year)

TOTAL U.S. OIL CONSUMPTION VS. YEAR

$\hat{Y} = 1939 + (2.2029 \times 10^{-6})X$

$r = .97$

PREDICTED CONSUMPTION RATE (BARRELS/DAY)

1985	20,750,187
1990	23,019,909
1995	25,289,632
2000	27,559,354

Comparing imports to total consumption rates:

$Y = 8523.69 \times 10^{3} + (1.263 \times 10^{3})X$

$r = .95$

IF IMPORTS	THEN CONSUMPTION
9,000,000	19,886,610
10,000,000	21,149,157

Recent Presidential initiatives to limit U.S. reliance on imported oil and a general consumer trend toward conservation has, since 1978, produced a decline in oil imports and, since 1979, a decrease in total oil consumption. While in subsequent years an actual decrease in per capita oil consumption can be expected as both consumption patterns and technological innovations stress resource conservation, population increases will almost invariably cause absolute increases in total U.S. oil consumption over time. Where some bounding is likely to take place on overall petroleum

usage, it still should display at least some degree of linearity over time.

7. Comparing Transport Capacity to Import Requirement

When total U.S. oil transportation capacity and yearly U.S. oil import predictions are compared, some interesting insights are gained. In an absolute worst case peacetime scenario, maximum transport rate is predicted to stay ahead and even increase at a more rapid rate than oil imports over the long term. Table X is most instructive in indicating which nations and regional areas are most heavily relied on for access to oil by the United States.[20] Although 40.3 percent of U.S. oil imports comes from Arab OPEC states, with Saudi Arabia the largest single import source (25.4%), only 27.3 percent of U.S. imports actually came from the Persian Gulf region in 1981. Nigeria, Mexico and Indonesia all rank as large oil exporters to the United States, together supplying 31.9 percent of crude imports. This diversification of access to oil resources also significantly increases transportation capacity while decreasing its vulnerability. It also serves as a hedge against aggressive actions in Southwest Asia by the Soviets or a surrogate to attempt destabilization of the U.S. economy and military capacity.

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[20]Table X was produced by compiling data from U.S. Department of Energy Monthly Petroleum Statistic Reports for calendar year 1981.

TABLE X

IMPORTS OF CRUDE OIL AND PETROLEUM PRODUCTS BY COUNTRY OF ORIGIN, CY 1981
(Thousands of 42-Gallon Barrels)

Country	Crude Oil 1	Unfin. Oils	Nat. Gas Plant Liquids 2	Motor Gasoline 3	Jet Fuel	Distil. Fuel Oils 4	Resid. Fuel Oils 5	Liquefied Gases 6	Other Products 7	Total Products	Total Petroleum	Total (Daily Average)
Algeria	92,785	261	0	0	0	1,500	15,121	795	0	17,678	11,462	303.25
Iraq	0	0	0	0	0	0	0	0	(s)	(s)	(s)	(s)
Kuwait	0	0	0	0	0	0	0	116	0	116	116	0.33
Libya	115,102	0	325	0	0	0	395	0	0	720	115,822	318.08
Qatar	2,665	0	0	0	0	0	0	0	0	0	2,665	7.42
Saudi Arabia	404,387	455	0	266	0	0	149	3,977	(s)	4,846	409,234	1,121.50
United Arab Emirates	28,450	428	793	0	0	0	0	0	479	1,700	30,149	82.67
Arab OPEC	643,390	1,144	1,118	266	0	1,500	15,665	4,890	479	25,063	668,450	1,833.17
Ecuador	13,125	0	0	0	0	0	3,731	0	0	3,731	16,855	46.00
Gabon	12,629	0	0	0	0	0	0	0	0	0	12,629	34.75
Indonesia	114,622	94	0	3,078	(s)	566	11,303	0	0	15,039	129,662	355.42
Iran	0	0	0	0	0	0	0	0	0	0	0	0.00
Nigeria	223,154	172	0	(s)	0	0	2,885	0	0	3,057	226,212	621.00
Venezuela	52,998	4,782	0	380	1,134	5,476	77,591	1,127	1,477	91,969	144,969	397.00
Non-Arab OPEC	416,528	5,048	0	3,458	1,134	6,043	95,509	1,127	1,477	113,799	530,328	1,454.25
Total OPEC	1,059,918	6,192	1,118	3,724	1,134	7,543	109,286	6,017	1,956	138,860	1,198,773	3,287.33
Non-OPEC Arab	27,576	422	0	223	0	0	0	0	0	645	28,221	935.00
Canada	59,801	343	2,655	3,838	8	5,108	13,983	44,076	18,927	88,932	148,734	407.83
Mexico	170,258	308	0	(s)	0	376	11,478	156	156	12,474	182,732	500.50
Puerto Rico	0	3,297	0	9,568	244	5,115	822	0	3,597	22,646	22,646	62.00
Virgin Islands	0	2,429	0	19,580	3,147	25,072	52,916	0	16,221	119,363	119,363	327.92
Bahamas	0	4,411	0	0	1,178	5,615	12,436	0	1,397	25,032	25,032	68.50
Netherlands Antilles	0	1,626	0	1,035	5,021	2,209	60,966	9	525	71,478	71,478	195.83
Trinidad and Tobago	37,187	1,125	0	577	422	678	6,920	19	1,125	11,165	48,352	132.67
Western Europe 8	142,906	1,554	0	9,115	521	5,754	3,548	855	2,959	24,304	167,209	457.33
Norway	10,017	224	0	0	0	0	116	35	0	374	10,392	113.00
United Kingdon	27,307	0	0	0	0	0	1	0	(s)	1	27,308	296.33
Angola	17,602	0	0	0	0	0	1,405	0	0	1,405	19,006	52.08
U.S.S.R.	2	0	0	0	0	1,555	0	0	0	1,555	1,557	4.42

TABLE X

IMPORTS OF CRUDE OIL AND PETROLEUM PRODUCTS BY COUNTRY OF ORIGIN, CY 1981
(Thousands of 42-Gallon Barrels)

Country	Crude Oil 1	Unfin. Oils	Nat. Gas Plant Liquids 2	Motor Gasoline 3	Jet Fuel	Distil. Fuel Oils 4	Resid. Fuel Oils 5	Liquefied Gases 6	Other Products 7	Total Products	Total Petroleum	Total (Daily Average)
Algeria	92,785	261	0	0	0	1,500	15,121	795	0	17,678	11,462	303.25
Iraq	0	0	0	0	0	0	0	0	(s)	(s)	(s)	(s)
Kuwait	0	0	0	0	0	0	0	116	0	116	116	0.33
Libya	115,102	0	325	0	0	0	395	0	0	720	115,822	318.08
Qatar	2,665	0	0	0	0	0	0	0	0	0	2,665	7.42
Saudi Arabia	404,387	455	0	266	0	0	149	3,977	(s)	4,846	409,234	1,121.50
United Arab Emirates	28,450	428	793	0	0	0	0	0	479	1,700	30,149	82.67
Arab OPEC	643,390	1,144	1,118	266	0	1,500	15,665	4,890	479	25,063	668,450	1,833.17
Ecuador	13,125	0	0	0	0	0	3,731	0	0	3,731	16,855	46.00
Gabon	12,629	0	0	0	0	0	0	0	0	0	12,629	34.75
Indonesia	114,622	94	0	3,078	(s)	566	11,303	0	0	15,039	129,662	355.42
Iran	0	0	0	0	0	0	0	0	0	0	0	0.00
Nigeria	223,154	172	0	(s)	0	0	2,885	0	0	3,057	226,212	621.00
Venezuela	52,998	4,782	0	380	1,134	5,476	77,591	1,127	1,477	91,969	144,969	397.00
Non-Arab OPEC	416,528	5,048	0	3,458	1,134	6,043	95,509	1,127	1,477	113,799	530,328	1,454.25
Total OPEC	1,059,918	6,192	1,118	3,724	1,134	7,543	109,286	6,017	1,956	138,860	1,198,773	3,287.33
Non-OPEC Arab	27,576	422	0	223	0	0	0	0	0	645	28,221	935.00
Canada	59,801	343	2,655	3,838	8	5,108	13,983	44,076	18,927	88,932	148,734	407.83
Mexico	170,258	308	0	(s)	0	376	11,478	156	156	12,474	182,732	500.50
Puerto Rico	0	3,297	0	9,568	244	5,115	822	0	3,597	22,646	22,646	62.00
Virgin Islands	0	2,429	0	19,580	3,147	25,072	52,916	0	16,221	119,363	119,363	327.92
Bahamas	0	4,411	0	0	1,178	5,615	12,436	0	1,397	25,032	25,032	68.50
Netherlands Antilles	0	1,626	0	1,035	5,021	2,209	60,966	9	525	71,478	71,478	195.83
Trinidad and Tobago	37,187	1,125	0	577	422	678	6,929	19	1,125	11,165	48,352	132.67
Western Europe 8	142,906	1,554	0	9,115	521	5,754	3,548	855	2,959	24,304	167,209	457.33
Norway	10,017	224	0	0	0	0	116	35	0	374	10,392	113.00
United Kingdon	27,307	0	0	0	0	0	1	0	(s)	1	27,308	296.33
Angola	17,602	0	0	0	0	0	1,405	0	0	1,405	19,006	52.08
U.S.S.R.	2	0	0	0	0	1,555	0	0	0	1,555	1,557	4.42

TABLE X (Continued)

Romania	0	0	0	2,179	0	0	0	0	0	2,179	2,179	5.92
Other Western Hemis. .	47,863	1,841	0	22	0	376	10,981	147	985	14,352	62,215	170.17
Other Eastern Hemis. .	31,529	1,139	0	4,293	15	247	3,350	667	3,633	13,343	44,871	122.67
Total Non-OPEC	534,724	18,493	2,655	50,425	10,552	52,499	178,797	45,934	49,525	408,878	943,598	2,586.25
Total U.S. Imports 9 .	1,594,638	24,686	3,773	54,149	11,686	60,040	289,973	51,951	51,480	547,738	2,142,379	5,873.58

1 Includes crude oil imported for storage in the Strategic Petroleum Reserve.
2 Includes isopentane, natural gasoline, and unfractionated stream (including plant condensate).
3 Includes leaded and unleaded gasoline.
4 Includes no. 4 fuel oil.
5 Includes crude oil imported to be burned directly as fuel.
6 Includes ethane.
7 Includes motor gasoline, blending components, aviation gasoline and kerosene.
8 Includes totals for Norway and the United Kingdom which were broken out for three months of the year.
9 Excludes imports into Puerto Rico, the Virgin Islands, and other U.S. territories; includes receipts from Puerto Rico, the Virgin Islands, and the Hawaiian Foreign Trade Zone (HFTZ) (i.e., the U.S. is defined as the District of Columbia and the 50 states excluding HFTZ).

(s) Less than 500 barrels or less than 500 barrels per day.

Sources: Form ERA-60, "Report of Oil Imports into the United States and Puerto Rico;" Form FEA-P133, "Shipments of Refined Petroleum Products (including Unfinished Oils) from Puerto Rico to the United States."

Compiled from Department of Energy "Monthly Petroleum Statistics Report" for CY 1981.

8. Conclusions Drawn from the Analysis

U.S. flag tankship assets, in combination with effective U.S. control assets, provide a transportation capacity for crude oil products in excess of current economic and military need. There are, however, distinct limitations on U.S. ability to transport refined petroleum products. This is strategically significant in that refined products are those most critical to military operations.

Table XI provides data on U.S. and effective U.S. control tankship aging and speed trends. Speeds as indicated were used in the preceding analysis. Average speeds reflect an attempt at economy in operations. Average age and aging trends of effective control assets demonstrate a propensity toward replacement of obsolescent assets more expeditiously than is the case with U.S. flag assets. Since the bulk of transport capacity rests with the effective control fleet, this is an encouraging trend.

Economic factors have been demonstrated to have played a large part in the shift to flags of convenience by U.S. shipowners. In a like manner, market forces have determined the availability of oil transport capacity. Therefore, a direct linkage between oil import requirements and oil transport capacity is evident. If bounding takes place in one area, it should also be seen in the other. Thus, as long as the U.S. economy remains strong, market forces will

TABLE XI

CARRYING CAPACITY OF U.S. AND
U.S. EFFECTIVE CONTROL TANKSHIP FLEET

UNITED STATES

YEAR	NO.	DWT	AV. AGE	AV. SPD.
1968	378	8,361,600	16 YR. 2 MO.	16.1
1971	350	8,911,000	16 YR. 5 MO.	16.2
1974	312	9,525,200	15 YR. 6 MO.	16.3
1977	290	11,565,138	13 YR. 3 MO.	16.4
1980	314	16,583,068	11 YR. 3 MO.	16.3

LIBERIA

YEAR	NO.	DWT	AV. AGE	AV. SPD.
1968	235	10,051,300	7 YR. 10 MO.	15.9
1971	287	16,805,900	7 YR. 8 MO.	15.9
1974	361	27,808,300	7 YR. 0 MO.	15.8
1977	408	46,558,611	6 YR. 1 MO.	15.7
1980	339	47,229,277	7 YR. 4 MO.	15.7

PANAMA

YEAR	NO.	DWT	AV. AGE	AV. SPD.
1968	87	2,806,000	10 YR. 9 MO.	16.0
1971	113	4,480,800	11 YR. 5 MO.	16.0
1974	99	4,073,700	12 YR. 0 MO.	15.8
1977	90	5,708,189	9 YR. 5 MO.	15.7
1980	70	6,115,338	9 YR. 7 MO.	15.6

U.S. OIL CONSUMPTION

YEAR	BARRELS/DAY	IMPORTS BARRELS/DAY
1968	13,080,000	2,810,000
1971	14,845,000	3,930,000
1974	16,150,000	6,125,000
1977	17,925,000	8,710,000
1980	16,930,000	6,735,000

ensure adequate tankship assets to meet U.S. oil import requirements.

V. OIL AND GRAND STRATEGY: THE STRATEGIC LINK

A. INTRODUCTION

The value of oil to modern economies is great, although impossible to assess accurately. It is relatively cheap to extract, and easy to transport and store. It can be used to produce energy, electricity and fuel for various modes of transportation and, perhaps most important, can be utilized in quantities commensurate with actual need. In the conduct of modern warfare, oil is the single resource without which operations can not be conducted. Even in an age of rapid technological advance, the availability of petroleum resources remains indispensable in both the planning and execution of military strategy. Therefore, because of both its economic and military value, the securing of access to oil and provision for its transportation becomes an interest of paramount national importance.

In both the First and Second World Wars, oil availability proved to be a significant determinant of military success. Without it, the war-making apparatus of any belligerent would have ground to a halt. The security, protection and transportation of oil became a prominent issue which received much attention in the formulation of strategies of the Wars. In the words of French Senator Henry Berenger in providing counsel to Clemenceau before he met with Lloyd George to

discuss the political future of the Middle East prior to World War II:

> He who owns the oil will own the world, for he will rule the sea by means of the heavy oils, the air by means of the ultra-refined oils, and the land by means of petro and illuminating oils. And in addition to these he will rule his fellow men in an economic sense, by reason of the fantastic wealth he will derive from oil--the wonderful substance which is more sought after and more precious today than gold itself. [Ref. 176]

Today, as it has throughout this century, oil plays a dominant role in the formulation of national economic and military policy. Without it the economies of the Western powers would be decimated, as would their ability to provide for national security. For this reason, continued supply of oil resources remains a vital political, economic and military objective. It also presents an area of vulnerability exploitable by the Soviet Union. The Middle East, as the predominant producer of oil, has become the focal point of competition for control of this vital resource. Along what lines future competition might take place, at this point, remains conjecture. From a strategic standpoint, however, it is essential that contingencies be considered so that uninterrupted flow of oil will continue.

Consequently the remainder of this chapter will be devoted to development of possible conflict scenarios for Southwest Asia. In each, the primary consideration will be the effect on U.S. ability to retain access to Middle East oil resources and to transport those resources. The

interdependence of the United States and her NATO allies, in both an economic and strategic sense, will be stressed. Before any scenarios are developed, however, a discussion of the impact of oil resources on grand strategy and eventual military victory in World Wars I and II, as well as how it relates to the military relationship between the major Western nations, should prove insightful. Additionally in that transportation of oil resources is as important to the Western powers as access to these resources, a critique of the capacity and capabilities of the United States in this area will be provided.

B. OIL AND WAR

1. Historical Context

Much has been written about grand strategies for war, and on the role of military genius in determining the outcome of war, but little consideration overall is given to the role of strategic resources as the driving factor in the formulation of grand strategies. For almost 200 years prior to World War I, England was the most important maritime power in the world. Challenged at regular intervals, she was able to maintain her position through a strong economic base and employment of a seaborne military peripheral strategy. Her ability to effect this strategy was not coincidental. An island nation, England was of necessity a seafaring nation. Her economic interests were thus closely tied to her merchant

shipping capacity, which was vulnerable to attack on the high seas. Therefore, the creation of a strong navy to protect her economic interests was a logical outcome. It also allowed employment of a peripheral strategy, which was well suited to British military capabilities. In this respect, British economic and military necessities were intrinsically linked.

The onset of the twentieth century greatly altered the relationship between nations in several respects. The perfection of the internal combustion engine ushered in great technological advances in both production and transportation. In that economies were now increasingly linked to oil, as a prerequisite for mechanization, competition for this resources became more pronounced. The same advances in transportation technology that demonstrated such promise for the economic sector had even a more profound effect on the military sector.

2. Oil and World War I

By the start of the First World War, the shift to mechanization had already begun in the military establishments of all the major world powers. Possibly no single entity has become more transportation-dependent than the military. Operations and logistics in ground, naval and air units became increasingly dependent on oil-based technology during the War, and have continued in a like manner ever since. The composition of forces, their manner of employment,

and limitations on national military capabilities all have been determined to large extent by the resource base to support mobile units. Once forces are joined, oil availability has become the primary limiting factor in continuing economic and military support of the war effort.

Prior to World War I, the British, fearing the great firepower of the new German battleships, decided to produce a superior naval platform--the Dreadnought class of battleships--capable of carrying a fifteen-inch gun. To add to the decisiveness of a ship so armed, the fleet was converted to oil in 1911-1912 [Ref. 177]. This increased effective cruising range by approximately 40 percent and, with support from tanker ships equipped for at-sea replenishment, greatly increased fleet mobility and flexibility [Ref. 178]. Since Britain, like France and Germany, had little indigenous oil production, this resource gained significant attention. Creation of the Anglo-Persian Oil Company in 1912 in an area already subject to British influence because of her trading interests marked the beginning of competition between British, Russian and German interests in the resources of the Persian Gulf.

Though the competition for Middle East oil had little to do with the outbreak of World War I, it had a significant impact on the conduct and outcome of the war effort. Due to lack of desired mobility, the belligerents were forced into a war of attrition, i.e. the ability to successfully diminish

the other side's will and capacity to continue the conflict became the main means of achieving victory. Oil, increasingly after the advent of mechanized land, sea and air warfare was applied in a large scale after 1916, became strategically important to the war effort. Its place was no longer relegated to consideration from only a logistical standpoint. It directly affected the outcome of the war as much if not more than shelling or bombing. The dependency of both the economic sector and the military establishment on the availability of oil to conduct the war effort, however, produced new problems. Among these were securing access to and providing security for oil as a vital national resource. Also, transportation of oil had to be conducted via secure sea lanes.

> The logistical problems posed by oil dependency were enormous. Sea lines were extended and used more heavily, making them more vulnerable to interdiction. Tankers became important targets, not only for the fuel they carried at the time of their sinking, but also because the destruction of a tanker fleet was tantamount to severing all oil supplies. Oil fields proved to be relatively resilient targets, while pipelines, railways, storage tanks, and tankers were more vulnerable. The denial of an enemy's supply, through either blockade or the active destruction of fields, stocks, or transport networks, became as much a part of strategy as the security of one's own supply. [Ref. 179]

In many respects, the situation of total economic and military reliance on oil was beginning to shape the formulation of grand strategy on the part of the major powers as never before.

The German reliance on oil during World War I was no less dramatic than that of Britain. Relying on Standard Oil,

an American company, for over 90 percent of her fuel needs at the start of the war, Germany could count on only about 210,000 tons of oil from politically secure sources compared to a consumption of one million tons a year reached by 1913 [Ref. 180].

> Things did not go well for the Germans before World War I in the Persian Gulf and Mesopotamia generally. Persia was lost to the British and Russians, and the Berlin-Baghdad Railway was unable to reach potentially rich oil fields in Iraq by 1914. Thus, the Germans were unable to break the hold of Standard Oil on their sources of supply. At the outbreak of war, Germany was limited to oil from domestic sources and Galacia. The need for oil thus exerted influence over their later strategy in Rumania and the Caucasus [Ref. 181].

The German decision to invade Rumania after having war declared on her by that nation in 1916 was precipitated largely by an increasing need for oil to fuel the war effort. Subsequent to Brest-Litovsk, the German campaign to take the Baku oil fields had the same genesis. Due to inadequate oil supply, the German war effort was adversely affected in the west.

In the face of new mechanization, especially in the use of tanks by the Allies to alter the lines drawn in trench warfare, oil also played a central role. The Germans for all practical purposes used no tanks in World Wor I (only a few captured Allied and a handful of German design). By late 1916, the Allied blockade of Germany was beginning to have significant effect in denying other critical resources, including food. The lack of oil also hindered German use of

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In the face of new mechanization, especially in the use of tanks by the Allies to alter the lines drawn in trench warfare, oil also played a central role. The Germans for all practical purposes used no tanks in World Wor I (only a few captured Allied and a handful of German design). By late 1916, the Allied blockade of Germany was beginning to have significant effect in denying other critical resources, including food. The lack of oil also hindered German use of

the submarine to alter this condition. All in all, through a cumulative strategy of resource denial, Germany was gradually deprived of the capacity to continue the war effort. Without overwhelming military defeat or complete loss of support for the war effort on the home front, Germany nonetheless was forced to surrender to the Allied powers. Though this was not because of lack of oil, low oil reserves nonetheless contributed to her defeat. The lesson this provided was not lost on the Allies, or the Germans for that matter, and it provided a significant basis for the formulation of Grand Strategy for World War II.

3. Oil and World War II

a. Strategic Resources and the War in Europe

The causes of the Second World War were manyfold, reflecting primarily on the inequities established at Versailles in the aftermath of World War I. Arbitrary territorial borders, reparations, establishment of war guilt, and an overall decline in the world market economy all contributed to a situation where German adherence to democratic norms had little chance of success. Accompanying this situation was an overriding German desire to reclaim her rightful place in the world community. As Hitler rose to power in January, 1933, there were other problems to be dealt with. These included increased German access to resources of all types and to arable land for expansion of German agriculture. Lack of resources had greatly inhibited Germany, and, as much

as any other factor, contributed to her inability to function in accordance with her other attributes of national power.

> There was also an important underlying structural problem--the uneven global distribution of raw materials among industrial states--that contributed directly to a collapse of world peace. In earlier times the size of a nation's territory and population, its military forces, and treasury wealth largely determined its comparative power and prestige. But in the twentieth century secure access to a vast quantity and variety of natural resources also became a key determinant of power. Coal, petroleum, iron, and copper, in particular, became the four indispensable materials for defense production and war-making. Smaller quantities of other materials--especially mica, tin, chrome, manganese, nickel, and tungsten--were also vital to national security. [Ref. 182]

By the late 1920s, Germany was extremely dependent on external sources for fuel and raw materials. Eighty percent of iron ore, eighty-five percent of liquid fuel, and almost half of all metal and mineral requirements were imported as late as 1929 [Ref. 183]. Throughout the 1930s, Hitler strove to correct this situation.

> That Germany must pursue a path toward self-sufficiency in order to reduce its economic vulnerability and prepare for the eventual war against Russia emerged in Hitler's 1926 memorandum outlining a four-year economic program. In this statement the Nazi leader spelled out his conviction that the war would be a series of short hard blows, not a war of attrition like World War I, for Hitler doubted his enemies would allow Germany to prepare adequately for an extended war within his own lifetime. Determined to prepare the German economy and military for a conflict within four years, Hitler proposed a major armaments build-up and use of existing foreign exchange for obtaining whatever materials were required to facilitate the arms preparations. He opposed Schacht's favorite panacea, export expansion, because it would simply delay completion of the arms program. "In four years," said Hitler, "Germany must be completely independent of foreign countries so far as concerns those materials which by any means

> through German skill, through our chemical and machine industry or through our mining industry we can ourselves produce."
>
> This document was no directive for autarky, or self-sufficiency. Rather Hitler sought to conserve German resources while accumulating vital raw materials from abroad in order to improve prospects for a successful war. "The definitive solution," Hitler said, "lies in an extension of our living space, that is, an extension of the raw materials and food basis of our nation." [Ref. 184]

Germany's pre-war economic strategy was thus driven by a desire for self-sufficiency. With respect to oil, and its relationship to the military machine on which Hitler knew he must rely heavily, he was particularly pointed in his conceptualization of German grand strategy.

> Hitler believed that Germany lacked the economic strength--especially because of its dependence on imported raw materials--to fight a prolonged war. For these domestic political, balance-of-power, and other operational military reasons, he developed the strategy of the blitzkrieg: the war must be fought quickly and decisively, presenting the countries to be conquered and allies that might be tempted to join the war with faits accomplis, and securing as quickly as possible the desired stocks of raw materials. This was a broad, perceptive, and highly opportunistic grand strategy. It was clearly aimed at avoiding the enormous social strains imposed by the "total war" strategy. [Ref. 185]

It is somewhat ironic that the blitzkrieg, relying so heavily on mechanization and thus on petroleum products, was conceived in part as a means of decreasing the liabilities inherent in a lack of oil resources.

Britain's announced intention to rearm and resist any German move against Poland placed Hitler in a precarious position. The invasion of Poland on 1 September, 1939, had to be completed before British rearmament could progress to a

point where the British could contest Germany militarily. Yet German fuel stocks were well short of those desired by The German General Staff. "Only 492,000 tons (or about one-third the desired level) of aviation fuel and 1,118,000 tons (or about two-fifths) of diesel and fuel oil were in reserve for the Polish operations, as opposed to the desired levels of 1,500,000 tons and 2,800,000 tons respectively" [Ref. 186]. The campaigns in Poland (Sep. 1939) and France (May-June, 1940), conducted in the blitzkrieg mode, contributed even further to depletion of German oil reserves. Though the blitzkrieg was designed in part to eliminate adversary ability to extract a cumulative effect on Germany's capacity to conduct warfare, it placed a severe limitation on the German military capability to conduct the type of operations necessary for continued success on the battlefield. Lacking critical access to oil, German synthetic petroleum production was pressed to the limit to provide adequate levels of petroleum for the German maneuver style of warfare.

Throughout the Second World War, oil played a significant role in the formulation of German grand strategy. Since lack of domestic reserves forced Germany to rely primarily on Rumanian oil, access to other sources of petroleum and production of synthetic fuels became an important adjunct of German planning. Between 1939 and 1944, synthetic production increased from 1.3 to 4.5 million tons per year, peaking at a rate of between 5 and 6 million tons per year

as compared to a maximum domestic crude production of 1.4 million tons per year [Ref. 187].

As outlined by Hitler in Mein Kampf, the German advance into the Soviet Union was in part the result of a desire to expand access to oil and strategic resources. Failure to consolidate gains in the oil-rich Caucasus during the Russian Campaign in 1942 and failure to support Rommel in a manner which would have ensured his continued advance after Operation Venezia (May 1942) contributed to a severe shortage of petroleum assets during 1943 and subsequently [Ref. 188]. Allied Strategic bombing of oil fields and synthetic fuel and hydro-generation plants after May, 1944, exacerbated the German dilemma.

Through a cumulative strategy of resource denial, especially of oil denial, the Allied Powers were able to gradually decrease German ability to conduct the war effort in the agressive manner required in her earlier successes. Lacking not only fuel for mobile and air forces, but chemicals for the production of munitions as well, the German counteroffensive at Ardennes and operations against the Soviets in Silesia were much less effective than they otherwise might have been. All things considered, Germany acquitted herself quite well in the latter stages of World War II, in view of her lack of petroleum and other strategic reserves.

Great Britain was no less subject to disruption of oil resources than was Germany during the War. Germany attempted, from the outset, to take advantage of British reliance on seaborne resource transportation to limit her military capability in the conflict.

> As early as October 1939, Admiral Raeder had advocated a combined all-out siege by the Luftwaffe and U-boat command against British SLOCs and industrial and port facilities. By 1942 the German U-boat offensive had come dangerously close to seriously restricting the Allied war economies, sinking ships faster than they could be built during much of 1942. The German focus on tankers caused direct oil shortages in Britain and the United States, but the losses of tankers themselves posed a far more serious threat. [Ref. 189]

British supremacy on the high seas, United States entry into the war, and the advent of the convoy system all contributed to the eventual inability of Germany to halt the British logistics system. Curtailment of U-boat operations in the latter stages of the war due to lack of fuel also contributed, but to a lesser extent.

Allied grand strategy was also centered significantly on the critical aspects of oil during World War II. As the War progressed, the Allies became more and more aware of the criticality of oil to the outcome of the war and altered strategy accordingly.

> The Allies and the Germans stood at opposite extremes on the integration of fuel supplies into the operational, logistical, and technological dimensions of strategy. Fatally flawed French strategy lacked mechanization and mobility, including even the assumption that tanks would have to return to support bases after consuming all their fuel. U.S. and British strategy lacked adequate attention to fuel supply, especailly in the total neglect of airborne

logistics support for ground forces in the face of enormous emphasis on strategic bombing was the total concentration of German efforts on motorized and airborne logistics for the blitzkrieg. Fighters disrupted French and Allied logistics behind the lines and JU-52s, building on the experience from the Spanish Civil War, and served as cargo planes for fuel, bombs, and supplies, providing the Luftwaffe with unprecedented mobility. The Germans did, however, fail to follow through on two crucial opportunities in 1941 and 1942 to seize the Soviet oil fields at Baku.

The controversy over the opening of a "second front" was complex, involving many strategic and political considerations. In brief, the United States and the Soviet Union favored a direct offensive against the European continent at the earliest possible date. The British realized that until the United States had sufficient time to become fully mobilized a full scale invasion would have to be largely British. Never a strong land power, Britain would not be able to seriously challenge Hitler under these conditions. Britain could well be faced with another Dunkirk.

The British therefore favored a more gradual, peripheral approach to confronting the Germans. Their strategy favored a protracted war of attrition on the German economy, utilizing intensive strategic bombing and blockades together with an attack on what Churchill referred to as "Germany's soft underbelly": the Mediterranean. The strategy would not only avoid a full-scale land confrontation with Hitler's armies but also would provide stronger control over their empire, particularly the oil-rich Middle East.

Indeed, the British did make several strategic decisions to protect the Middle East from German control. In 1942, when the Germans were as close as the Caucasus, a large number of British troops were withdrawn from Egypt and the war with Rommel to safeguard the Iranian oil fields. Similarly, the British occupation of Southern Iran was largely aimed at controlling Iranian oil. [Ref. 190]

More than any other single resource, oil determined the final outcome of World War II in Europe.

b. Oil and Grand Strategy in the Pacific

Unlike the war in Europe, Japanese entry into World War II was caused primarily because of concern for access to oil. As late as 1939, Japan purchased 80 percent of her oil from the United States, and most of the remainder from British and U.S. firms in the Dutch East Indies [Ref. 191]. Desiring to extend its influence and hegemony throughout Southeast Asia, the Japanese found that oil was the one resource that could not be stockpiled in sufficient quantities to ensure immunity from external political coersion. The lack of oil produced a dependency relationship on the United States, which advanced an "open door" policy in Asia that ran directly contrary to Japanese policy goals.

From the mid-1930s on, the possibility of an oil embargo against Japan was considered by the United States. The Japanese invasion of China nearly brought on such an embargo, but the State Department, reluctant to force Japan into an untenable situation, prevailed against such sanctions. The invasion of Indochina in July, 1941, caused President Roosevelt to effectively end all oil exports to Japan by executive order [Ref. 192].

> Negotiations to restore trade in exchange for a partial or total withdrawal of Japanese forces from occupied territory went on through the fall of 1941, but were never close to achieving success. The Japanese calculated that they had a maximum of 19 months' peacetime oil consumption equivalent in stock by late 1941, including only about 90 to 120 days' supply for the fleet. They perceived their strategic options as: (1) acquiescing in agreement with the United States, and gradually relinquishing control over all

> conquered territory; (2) doing nothing and facing steadily declining stocks; or (3) moving boldly to take control of the Netherlands East Indies, especially its rubber and oil supplies. Since the United States had recently begun building air bases in the Philippines, and late 1941 stock figures showed rapidly declining levels, it was the time to act. Japanese occupation of Manchuria, China, and Thailand ensured adequate supplies of most strategic materials, food, and other important equipment, but a critical shortage remained in oil.
>
> In formulating their strategy for the Pacific war, the Japanese knew that the only way to protect the supply line to the Indies was to oust the United States from bases in the Philippines, Guam, and Wake and to oust the British from Singapore. An attack on Pearl Harbor would be essential to prevent the U.S. fleet from interrupting tanker lines and other flows of essential wartime resources from the East Indies to Japan. If the empire were to be even maintained, action seemed necessary. [Ref. 193]

The desperate gamble of attacking Pearl Harbor came as a prelude to the invasion of the Dutch East Indies in January of 1942.

In response, the United States employed a sequential strategy of island-hopping to eliminate pockets of resistance in the drive toward the Japanese mainland. More successful, however, was the U.S. cumulative strategy of resource denial which eventually led to the economic and military collapse of Japan in early 1945. By February of 1945, Japanese oil stocks, which had stood at 43 million barrels in December 1942, were down to 3 million barrels [Ref. 194]. The employment of submarines in the Pacific by the United States, as well as effective air interdiction of shipping routes, led directly to the collapse of the Japanese war effort. The entire Japanese strategy in World War II

was aimed at gaining access to oil, in particular, and to a lesser extent other strategic resources. Needless to say, the U.S. strategy was based to a large extent on denying access to the resources needed by Japan.

C. STRATEGIC DEVELOPMENTS IN THE MIDDLE EAST

Subsequent to World War II, the Great Powers of the Western Alliance in Europe have found themselves in a situation similar to that of Germany and Japan. Once assured of adequate oil for commercial and military purposes from protectorates in the Middle East, these nations are now increasingly reliant on fragile political situations in the area. They are also vulnerable to any entity capable of denying them the oil reserves they need.

The situation which has most clearly changed the relationship between Western Europe and Suez was the Suez crises of 1956-1957:

> The sizable literature of historical and personal accounts of Suez in 1956-1957 concentrates on the management of the crisis and its global implications. Suez marked a climax in the steady erosion of the perceived and actual independent international power of Britain and France. It also shifted the strategic balance of power in the Middle East toward the Soviet Union and Arab nationalists. Undocumented, however, are the ways oil influenced the outbreak, conduct, and outcome of the crisis, including grand strategy and alliance cohesion for the 1960s and beyond.
>
> By the mid 1950s, the Suez Canal served as a vital artery for much of West European trade. The total tonnage passing through the canal increased about 50 per cent between 1951 and 1955, reaching approximately 207 million tons. About one-quarter of all British imports and exports passed through the canal.

> Oil stood out as the canal's most vital cargo. In 1956 Western Europe obtained 75 per cent of its oil from the Middle East with one half of this oil coming through the canal and the rest through Mediterranean pipelines. [Ref. 195]

French, and to a lesser extent British, economic and military fortunes were tied directly to free access to the Canal for transportation of oil resources.

The Suez Crisis was to large extent the result of misperceptions concerning the intentions of several nations with interests in the Middle East. The French, in 1954-55, extended military ties with Israel which, in turn, raided the Gaza strip in February, 1955. This caused concern on the part of the Nasser government in Egypt. Additionally, the ousting from power of Molenkov in the Soviet Union in 1955 and his replacement by Bulganin as Prime Minister, coupled with the conservative Molotov's fall from power in early 1957, led to a drive by the Khrushchev government for increased influence in the Middle East. This in turn led to indirect arms transfers from the Soviet Union (through Czechoslovakia) to Egypt. The move by Nasser into the Soviet camp caused John Foster Dulles to announce cancellation of the symbolic loan offer for the Aswan Dam project. Nasser retaliated a week later by the provocative step of nationalizing the Suez Canal Company and seizing the canal [Ref. 196].

European dependence on Middle East oil, and on the Suez Canal for its transporation, strongly influenced the British and French in their joint attack on Egypt in October, 1956.

Unable to obtain U.S. support for this venture, the threat of loss of access to Middle East oil together with the unavailability of oil resources controlled by U.S. companies, spurred the British and French to action.

Fearing increased Soviet influence in the Middle East, the Eisenhower administration hoped to counter the Soviet threat through the conclusion of the Baghdad Pact of 1955. Seeing the Middle East situation as a zero-sum game where Western losses equated to Soviet gains, Eisenhower was unwilling to force Nasser irrevocably into the Soviet camp by supporting British/French adventurism in the area. As a consequence, the joint Suez operation was doomed to failure, with catalytic consequences. During the hostilities, Nasser had closed the canal completely and cut oil flow further by destroying portions of the Iraq Petroleum Company (IPC) pipeline through Syria.

> Without any adjustment, Europe would have lost between 30 and 50 per cent of its normal oil deliveries because of loss of the IPC pipeline and the extra time required for tankers to travel the 11,200 miles around the cape instead of 4,900 miles through the canal. [Ref. 197]

The United States, meanwhile, had sided against her strong NATO allies in this important crisis. Rather than alienate the nations of the Middle East completely, Eisenhower initially refused to divert U.S. oil to Europe. Though this stand was subsequently changed, alliance cohesion had been undermined and what had originally been a question only of oil transportation had become a larger

question of oil access. Competition for scarce resources had the consequence of undermining the entire economic stability of the West.

The lack of support by Washington had the added effect of forcing the British and French toward more independent military strategies. The British pursuit of an independent nuclear capability, the announcement of force reductions from 700,000 to 375,000 across the three services [Ref. 198], and the decision in 1968 to withdraw from East of Suez can all be seen as tied in with the Suez Crisis. Coupled with losses in Indochina and Algeria, the French development of an independent nuclear force and withdrawal from NATO's military arm in 1966 can be linked with the crisis. Lack of U.S. backing in an area of such obvious economic and strategic military value, and a realization of the inability to take action without U.S. support in the face of lack of vital strategic resources, moved not only the British and French, but many other Western European nations toward accommodation at any cost to maintain access to needed oil.

D. STRATEGIC TIES TO MEANS OF OIL TRANSPORTATION

Western Europe today does not have the capability to sustain its economy in the face of any significant military conflict in which it does not enjoy free access to the oil resources of Southwest Asia. This implies not only the necessity for security in the area, but also the capacity to

transport resources from the area to terminal areas without experiencing undue attrition. In this respect, U.S. and European interests are intrinsically linked. Through the International Energy Agency (IEA), a subsidiary of the Organization for Economic Cooperation and Development (OECD), procedures for U.S. cooperation in an oil allocation system will be enacted should oil supplies to a particular member country or to the signatory group fall below previously determined levels [Ref. 199]. Additionally, U.S. tankship assets would undoubtedly be utilized, much as in World War II, to supply both U.S. and NATO requirements in support of the war effort. Disruption of oil flow to the West and Japan would only be of long term political advantage to the Soviet Union. Ironically, as a super power, the Soviet Union is the only member of the world community which has the capability to disrupt oil flow from Southwest Asia for protracted periods. For a variety of reasons, which will be discussed later, a move against Western oil resources by the Soviets is highly unlikely. Western perceptions of the efficacy of such a move by the Kremlin, however, could be greatly in error. Therefore, a discussion of the means by which the Soviets could employ existing military and political resources against Western interests in Southwest Asia, and the Persian Gulf area in particular, will be valuable as a prelude to formulation of U.S. policy for that area.

E. CONFLICT SCENARIOS FOR SOUTHWEST ASIA

1. Nuclear Conflict Confined to Southwest Asia

Soviet tactical and theatre-strategic assets now open an avenue to desired political objectives far more palatable than a frontal assault on Western Europe. From the Soviet perspective, Western Europe is a prize to be preserved rather than an enemy to be destroyed [Ref. 200]. Soviet theatre nuclear assets have been structured, therefore, to drive a wedge between the United States and the European members of NATO. Lack of alliance cohesion and a reluctance to provide the military hardware to counter the Soviet threat is little by little eroding the capability of the U.S. to come to the aid of Western Europe against the Soviet military machine. Thus, the Soviet Union is increasingly moving toward a position of power in its dealings with Western Europe. It is therefore unlikely that any direct military action aimed at Western Europe will be undertaken by the Soviets unless a crisis develops to a point where the ability of the Super Powers to manage it is lost. Admittedly, the probability of such a situation is extremely low.

If, however, such a situation developed, the Persian Gulf area would offer a target of considerable opportunity for the Soviet leadership. The capacity for destruction of Middle East oil producing assets with a fraction of the theatre-strategic arsenal presents the Soviets with a viable

means of bringing the European Continent to its knees economically. Such a move would be undertaken in an area far removed from any real U.S. capability to project power. It could also serve to further decouple a U.S. SIOP response to any subsequent adventurism on the part of the Soviet Union in Western Europe.

The Persian Gulf area provides a preponderance of oil for nations of the Western Alliance. Percentages of total oil imports that come from the area are as follows (1979 approximate figures):

UNITED STATES -- 28%
BRITAIN -------- 57%
WEST GERMANY --- 44%
FRANCE --------- 72%
ITALY ---------- 61%
JAPAN ---------- 73% [Ref. 201]

The strategic and economic impact on the West from the loss of petroleum resources would alter significantly the balance of power between the Soviet Union and the United States. Such an alteration of the "correlation of forces" could be quickly accomplished without changing the strategic relationship vis-a-vis the United States, or the tactical relationship with respect to Western Europe. In such a scenario resource denial rather than resource acquisition would be

the purpose of Soviet use of the surgical nuclear strike capability.

Soviet weapons systems which could be employed against Southwest Asia include the SS-20 missile system (of which over 300 are now in place in the Soviet Union) and the TU-22M Backfire bomber [Ref. 202]. Both systems have range capability sufficient to be employed against the entirety of Southwest Asia. The strategic objective in the area, however, would be limited to the Persian Gulf concentration of oil fields and ancilliary equipments (port facilities, pipelines, pumping stations, etc.).

The Soviet combined arms philosophy would indicate that conventional forces are likely to be used in conjunction with any nuclear strike, even against Southwest Asia. This, however, would not be necessary as Soviet goals in such a scenario would be accomplished without physical occupation merely by knocking out facilities capable of producing oil for Western consumption.

Such a scenario as Soviet use of nuclear weapons surgically against the Persian Gulf oil fields is not in line with either the Soviet conceptualization of space or time. Viewing space as volume, the use of weaponry for denial without any tangible gains would not be likely. In terms of time, radical, high risk departures from long-term political advances are uncharacteristic of Soviet cultural biases. For these reasons, the Soviet political/military

interface is more attuned to cumulative strategies than to sequential strategies such as the one described above.

2. Confrontation at Sea

The recent expansion of the Soviet Navy is cause for concern in relation to protecting the sea lanes from interdiction. Perhaps no vessel is more vulnerable on the high seas than the petroleum tanker. Even utilizing the pipeline network which leads from the Persian Gulf to the Mediterranean area, Middle East oil must be transported by sea to Western Eruope. Japan and the United States are equally dependent on seaborne oil. As demonstrated during the First and Second World Wars, any time petroleum must be transported by sea it is vulnerable to interdiction, particularly by submarine forces. Should the Soviet Union determine that a necessity existed to overtly attack the economy of Western Europe, conduct of this attack entirely at sea would provide several advantages.

Given the strategic nuclear balance, and the theatre nuclear balance in Europe, a seaborne conflict directed at Western strategic and economic interests in the Middle East could prove effective while retaining for the Soviets the ability to limit the conflict. In this respect, crisis management could be exercised commensurate with strategic objectives.

Soviet control of choke points, such as Babel el Mendeb in the Gulf of Aden, the Straits of Hormuz, the

Malacca Straits and the Mozambique Channel, all of which are on major oil tanker routes, would prove most useful in such a scenario. Soviet political initiatives to establish control of these choke points is already in progress. Additionally, client states that could disrupt shipping with their limited naval assets are being supplied in this area as well by the Soviets. Client states include Iraq, Ethiopia, South Aden (ports), Vietnam (Cam Rahn Bay), Mozambique, Madagascar (port negotiations underway), Angola and Libya. All have leftist governments providing potential inroads for the Soviet Union which greatly increase the range of and potential for her navy in the areas over which oil must be transported by sea.

By 1977, only about 12 percent of Gulf oil transited the Suez Canal and Mediterranean pipelines [Ref. 203]. In late 1976, the Suez-Mediterranean (SUMED) pipeline, running 320 kilometers from the Egyptian port of Ain el-Sukhna on the Red Sea to the terminal of Sidi Kreir on Egypt's Mediterranean coast was opened. SUMED's current capacity is 1.6 million barrels of oil per day or a yearly capacity of 80 million tons [Ref. 204]. Widening and deepening of the Suez Canal, started in the early 1970s, is nearing completion in 1982. As originally envisaged, expansion plans to increase the Canal draught to between 67 and 70 feet would have allowed fully loaded tankers of 270,000 deadweight tons and partially loaded tankers of 300,000 deadweight tons to

transit the canal. This improvement would save tankers now having to round the Cape of Good Hope an average of 24 days in the round trip to Western Europe [Ref. 205]. The actual depth of the Canal when completed will be 77 feet, allowing accommodation of even larger vessels than originally anticipated [Ref. 206]. With relations prospering with Ethiopia and South Yemen, the Soviets enjoy a degree of control over the Babel el Mendeb. Libyan ties, not to mention the extensive Soviet naval capabilities in the Mediterranean, present potential for disruption of shipping on the northern approaches to Suez. Although the Convention of Constantinople, signed by nine nations in 1888, guarantees that the Suez Canal will be open to "every vessel of commerce or of war, with out distinction to flag" [Ref. 207], events in 1956 and 1967 have shown this to be less than a guaranteed situation. Suez was closed to all traffic from November, 1956, to January, 1957, and again from 1967 to 1975 in the aftermath of the Arab-Israeli War [Ref. 208]. Soviet naval power and control of strategic choke points provides them with the ability to disrupt oil transportation in a similar manner.

The sea lanes off the Cape of Good Hope are the most crowded in the world with a daily passage of over 1.5 million tons of oil [Ref. 209]. This route passes between Mozambique and Madagascar as well as along the coast of Angola, all states with increasingly strong Soviet ties. As has been

mentioned previously, 73% of Japanese oil passes through the Straits of Malacca. Proximity to the larger Soviet naval base at Cam Rahn Bay makes this transit very subject to Soviet interdiction.

Admiral Of The Fleet Of The Soviet Union Gorshkov has stated that "The disruption of the ocean lines of communication, the special arteries feeding the economic potentials of those (the enemy) countries, has continued to be one of the most important of the (Soviet) Navy's missions" [Ref. 210]. As was demonstrated in the 1973 Arab-Israeli War, the Soviets are not reluctant to enter and operate at direct odds with the United States in a combat zone if it is deemed necessary [Ref. 211]. During this conflict, Soviet coverage of choke points remained an integral part of the naval mission [Ref. 212].

The extensive Soviet submarine fleet, and particularly the diesel fleet which could work out of friendly ports, would provide a formidable adversary for Western anti-submarine warfare capabilities. Inability to conclusively tie small scale submarine activity against tanker ships to the Soviets could also afford them the capability of disrupting oil flow without precipitating a crisis of tremendous magnitude. Additionally, Western reluctance to resort to nuclear war in such a scenario could offer the Soviets potential for altering the "correlation of forces"

by denying the U.S. and NATO strategic oil availability and forcing an economic stranglehold on Western Europe.

Disadvantages for the Soviet Union would undoubtedly include the possible escalation of conflict with the United States. Any direct strike at strategic assets might also elicit a unified NATO response. Additionally, submarine activity would quite likely bring about the involvement of many nations because flag discrimination is nearly impossible. This would cause worldwide condemnation of the Soviet Union and could work against the Soviets politically in the long run.

Current Soviet force levels in the Indian Ocean include an average of eight surface combatants and fourteen support and supply ships plus one or more nuclear and several conventionally powered submarines [Ref. 213]. Even with the aid of Soviet Naval Aviation and the use of mining techniques in areas such as the Straits of Hormuz, this force is at present much too small to offer the Soviets any possibility of an all-naval confrontational scenario directed against the West in the Indian Ocean. In that available Soviet assets must be committed elsewhere, the prospect for this scenario is extremely low for at least the next decade.

3. Indigenous Revolt or Soviet Proxy

The oil fields of Southwest Asia are vulnerable in many respects. Primary among these is the disruption of oil flow that can be accomplished by destruction of the oil

fields, refineries, pumping stations, pipelines, and docking facilities in the Persian Gulf. Even a small strike, such as could be accomplished by a terrorist group, could decrease oil output for months or even years. This situation places Western interests in jeopardy from any conflict that might arise indigenously, or that might be precipitated by a Soviet proxy state.

Indigenous conflicts such as the state of civil unrest accompanying the fall of the Iranian Shah, the conflicts in 1967 and 1973 between Egypt and Israel, or the continuing Iran/Iraq conflict, all have to some extent decreased oil availability from the Persian Gulf area. The potential for larger scale conflict, or Muslim fundamentalist unrest spreading to Saudi Arabia, is always a possibility. Any such situation would certainly put Western interests in a precarious situation.

Soviet ties, including massive arms transfers, with client states in Southwest Asia including Libya, South Yemen, Ethiopia and even Iraq could be used as a pretext for causing a situation which would destabilize the region. Means of oil production could be severely damaged, limiting flow to the West and Japan. This in turn would have a significant adverse effect on Western economies and, to use the Soviet term, alter the "correlation of forces," political, economic and military, in favor of the Soviet Union.

In this situation, use of the U.S. Rapid Deployment Joint Task Force (RDJTF) in a preemptive maneuver could prove extremely beneficial. Immediate engagement forces could be utilized at the request of a friendly government or governments to re-establish and maintain the status quo. Also, introduction of U.S. forces quickly would up the ante (increase risk) for the Soviet Union and limit her range of rational response.

United States action in the event of regional armed conflict in Southwest Asia would include but not be limited to the following:

1. Economic, technical and political assistance.
2. Training and material assistance.
3. Encouragement of intervention by third party forces.
4. Threatened intervention with U.S. forces. [Ref. 214]

In the event of intra-regional conflict in the area, possible U.S. action would include:

1. Large scale concentration of U.S. forces.
2. Planning and execution of collective action with alliance partners.
3. Provide security assistance to friendly states in the area.
4. Provide multi-national naval force to ensure freedom of navigation.
5. Provide air defense.
6. Control escallation. [Ref. 215]

The establishment of the Gulf Cooperation Council, consisting of Saudi Arabia, Oman, Bahrain, the United Arab Emirates and Kuwait in 1981 has gone a long way toward increasing security in the area against this type of scenario. Western and U.S. support in this venture would be most beneficial to all concerned.

Realistically, adventurism on the part of the Soviet client states has hurt rather than helped the Soviet image in most cases. The Libyan leadership has often used Soviet supplied equipment in a manner to discredit the Soviets for potential complicity for irrational acts. Even the Arab participation in the 1973 Middle East conflict placed the Soviets in a position where they could have been shown to be unable to support the interests of their clients [Ref. 216]. Any situation which would bring the Soviets to the brink of a direct confrontation with the United States without full Politburo political involvement can be seen as clearly against Soviet interests.

Soviet use of client states, such as the Cubans in Angola, Ethiopia, and Latin America and the East Germans throughout Africa has clearly been more effective [Ref. 217]. In a resource denial scenario in Southwest Asia, however, such surrogated involvement would clearly necessitate Soviet participation. This alone clearly decreases the potential for Soviet use of clients other than those indigenous to the area.

For any direct Soviet move against Southwest Asia 2 Airborne Divisions (CAT. I), 21 Motorized Rifle Divisions (CAT. II or III), 1 Tank Division (CAT. II or III) and 2 Tactical Air Armies (with 600 aircraft) would be available [Ref. 218]. Though this is a considerable military force, the Soviets would not be able to project such a force easily into the Persian Gulf area. First, air superiority over the region could not be assured without use of airfields in Afghanistan. Second, in that there are only three routes available into the area for Soviet troops, one to the west of the Caspian Sea near Turkey and the other two through mountain passes northeast of Tehran in Iran, Soviet military access in a conventional scenario would be severely limited. What would seem to be a situation with interior lines of communication could easily be changed to exterior lines by successful U.S. air interdiction and the anarchical situation in Iran. Therefore, the use of nuclear assets to offset other liabilities seems a more plausible and less risky military alternative than a frontal assault on Western Europe. This is especially true in that both options would conceivably provide for the Soviets the same strategic result.

For these regions, selective Soviet manipulation of clients to advantage and long-term political overtures to nations of Southwest Asia seems extremely plausible. Direct military involvement, as long as the Soviet Union is not

denied legitimate commercial access to the resources of the area, seems a remote possibility [Ref. 219].

F. REALITIES OF SOVIET POLICY IN SOUTHWEST ASIA[21]

While the denial of oil to the West is an extremely remote possibility given current Soviet capabilities and limitations, the Soviets would in all likelihood try to deny this resource in a protracted conventional war. At present, it does not appear that the Soviet Union will be a net oil importer in the near future. Therefore, no short-term vital interest exists for the Soviets in Southwest Asia for the acquisition of this resource. Using the temporal domain wisely, the gradual gains made politically in the area must indicate that a steady, cautious but consistent political course is better than reckless "adventurism".

The Soviets strongly believe that any war will be of necessity fought against the entire capitalist world, not to mention China, simultaneously. In that such a war must never again be fought on Soviet soil, a preponderance of concentration on offensive weaponry is evident in the Soviet arsenal. This does not necessarily indicate an overtly hostile and aggressive nature, however. The Soviets definitely believe that time is on their side, and that the "correlation

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[21]Valuable insights for this section were provided by Captain Charles F. Turgeon, USNR, Commanding Officer, Naval Intelligence Command Estimates Reserve Unit, in an interview conducted in April, 1982.

of forces" is not yet sufficiently in their favor to resort to use of provocative military means. This is not to indicate, however, that the Soviets won't resort to a display of power if necessary. It only implies that a cautious, opportunistic approach to politics in Southwest Asia can be expected from the Soviet leadership.

The Soviet Union, like the United States, has a significant interest in the Indian Ocean area. Transportation facilities reaching to the eastern U.S.S.R. are inadequate at best. Even the completion of a second (parallel) trans-Siberian railway in the near future will not alleviate Soviet logistical difficulties. For this reason, the route through Suez and the Straits of Malacca is important to the Soviet Union, particularly in winter. Any attempt to disrupt Western oil access could result in a situation working to the detriment of the Russians as well.

Diversification of oil resources for Western Europe as well as the United States also limits the potential for Soviet gains through overt action directed at the Persian Gulf area. Inter-area security cooperation and the threat of a U.S. response designed for quick entry into the area and aggressive, combat and maneuver oriented strategic policy will certainly decrease Soviet aggressive intentions through increase of risk.

At this point in time, therefore, direct Soviet military action in Southwest Asia is only a remote possibility. The

only possible exception is if the situation in Iran degenerates, because of the border proximity to the Soviet Union. A continued cautious but assertive course can be expected from the Soviet Union, and therefore Western access to the oil resources of Southwest Asia should not be in peril of interdiction through the 1980s.

VI. CONCLUDING REMARKS

Since at least 1935, U.S. maritime policy has been remarkably consistent. It has been shaped to large extent by the realities of the competitive aspects of the American merchant marine and shipbuilding. Unable to produce or crew ships economically, U.S. policy has opted for a flexible relationship with several flag of convenience countries, with U.S. merchant marine policy largely evolving rather than being formulated by conscious intent. The result has been a system that meets both the nation's economic and defense needs.

There are, unfortunately, some areas in which the U.S. merchant marine needs improvement. Lack of dry bulk carriers and refined petroleum product tankers are but two areas in which the United States is distinctly lacking. In most areas, particularly those critical to the economy, assets are definitely adequate. As has been demonstrated in chapter IV, the crude oil tankship industry has now an overcapacity to transport oil imports and is likely to stay ahead of required capacity far into the future.

Few industries in the world are as capital intensive as the shipping industry. Therefore, the health of that industry is linked particularly closely to the strength of the economy. First, economic conditions determined both

favorability and direction of trade. As trade contracts, so also must the shipping industry. The reverse is true also. Second, availability of investment capital at reasonable interest rates is a prerequisite for continued replacement of obsolete vessels. Without sufficient capital, the U.S. shipping industry is sure to contract over time.

U.S. maritime policy has, without resort to excessive subsidization, established a climate where investment capital is available to shipowners. The U.S. flag fleet is stimulated directly through a legislative system of fiscal and nonfiscal aids. The effective U.S. control fleet is placed in a situation where profits not repatriated to the United States are not subject to excessive taxation. This induces fleet modernization and expansion. The result of any attempt by Congress to enlarge the U.S. flag fleet at the expense of flags of convenience would be prohibitively high subsidization. The cost of that subsidization would be of necessity shouldered by the American taxpayer.

There are, of course, disadvantages to the U.S. association with flags of convenience. American merchant seamen are forced to compete within the world labor market for jobs. Shipbuilding capacity is reduced through non-competitiveness in the industry. Perhaps most important, the ability to induce a structure on the type of assets in the American merchant marine is lost by government to the private sector.

Without changing the system, however, incentives can be provided to correct deficiencies once identified.

The positive aspects of flags of convenience far outweigh any disadvantages. Evasion of neutrality in the years leading up to World War II is an excellent example of a policy which could not have been effected with a purely U.S. flag fleet. Another example of the utility of the effective control fleet is the economic benefit derived from it subsequent to the 1973 Yom Kippur War. On 28 October, 1973, the Arab oil-producing states, in a show of solidarity with Egypt and Syria, boycotted shipment of oil to the United States. The manner in which this was effected was to prevent U.S. flag vessels, or vessels bound directly for the United States, from loading oil in Arab ports. Yet the oil industry, primarily through U.S.-owned foreign-flag vessels, was able to maintain continuity of worldwide oil distribution [Ref. 220]. Had U.S. maritime policy not evolved to include the present relationship with Liberia and Panama, this "convenience" to the United States would have been denied.

Much has been made about an executive order issued by the Liberian President during the 1973 War prohibiting transportation of oil to Israel on Liberian flag ships. It is true such an order was issued, but it was retracted less than 24 hours later. In announcing the retraction, the effective-control relationship between Liberia and the United States

was reaffirmed by the President of Liberia. In fact, he stated, his edict was never directed at ships effectively controlled by the United States, but, rather, those owned by nationals of nations having no such relationship.[22]

There has been some indication that the governments of the Arab OPEC states are interested in exerting greater control over their resources through a concerted effort to gain a major share of the oil transportation industry. This could effectively negate advantages available to the United States through the effective control fleet such as those enjoyed in 1974. As of 1980, however, OPEC countries held only 3.6 percent of the world's tanker fleet, while developed countries owned 52 percent [Ref. 221]. With profits in excess of those that could be obtained by increasing an already apparent over-capacity in tanker tonnage on the world market already available through more secure investments, OPEC nations are unlikely to pursue this option aggressively. The Soviet Union, without question is in a position to disrupt oil flows from Southwest Asia to the United States and Western Europe. Through choke point tactics, support of terrorists or identification with surrogate states, this could be accomplished by attacking U.S. seaborne means of oil transportation directly or indirectly. Effective control assets,

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[22]Discussion based on information provided by Mr. Eugene Yourch, Executive Secretary, Federation of American Controlled Shipping.

however, provide a hedge against such an occurrence. Any move by the Soviets against U.S. strategic seaborne oil transportation would by nature be directed at assets of many nations registered under flags of convenience.

U.S. merchant marine policy is well established in both domestic and international law. It provides a significant strategic capability without the costs that could be inherent with it. It also provides a flexibility that few other maritime systems offer, in both the economic and military sense. Therefore, unless major changes in U.S. maritime policy are necessitated by unforeseen circumstances, the American flag, American-owned and American controlled merchant fleet, and particularly the tankship fleet, will continue to meet the needs of the country into the indefinite future.

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